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THE SEPTIC HAND*

BY THE LATE

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A discussion on the septic hand cannot fail to be instructive, because, in the first place, it makes us clarify and bring into focus our views on acute infections and the principles on which they should be treated, and, in the second, it brings into prominence an oft-neglected but all too common problem of everyday practice.

There has been an unfortunate tendency to regard infections of the hand as among the minor surgical maladies. In point of fact such infections are of primary importance, for not only do they not infrequently endanger life but quite commonly they lead to lasting disability in men who have to earn their livelihood by manual work. Rational treatment of such infections will depend (*a*) on a sound knowledge of the infective process, and (*b*) on a familiarity with the anatomical structure of the hand and the relation of this to varied types of infection. We owe a great deal to two men for our modern treatment of hand infections—to Bier for his illuminating studies of the infective process, and to Kanavel for his contribution to the pathological anatomy of the infected hand.

The Infective Process

Mild infections of the hand are of hourly occurrence, although but a very small proportion of them ever reach the doctor. There is obviously a considerable local and general immunity against the stray bacteria found on our hands and on the varied objects which may inflict an accidental wound. Every now and then, however, a germ of some virulence gains access, or a wound with devitalized edges presents a soil in which otherwise harmless germs may flourish and we recognize that infection has gained a hold. The signs of such a foothold are local pain and swelling, and the general evidence of poisonous absorption, such as rigor, rise of temperature and pulse, and dryness of the tongue and mouth.

In the mildest degree of infection the local defence mechanism appears to be easily capable of dealing with the invading germs. The transient blush, which means that the local vascular and cellular reactions have quickly overcome the invaders and restored the part to normal, has a lesson for us in the treatment of infections. Local hyperaemia permits a rapid concentration of defences and confines the fight to a little zone around the point of entrance of the germ. If we could restrict the area of infection to the tissues round about the point of entry, if we could have the fight fought to a finish in the outskirts and preserve intact the inner defences and the citadel, we should have an almost painless victory with the minimum of loss.

Bier's great contribution to the study of infection was his demonstration that, by controlling the return circulation of blood and lymph from an infected part and producing a slight lymph stasis in the area, we may not only limit the central spread of infection until such time as the process of immunity is fully under way, but we may by bathing the infected area in lymph dilute the poisons, reducing pain and favouring recovery with a minimum of tissue damage by suppuration or necrosis. In this country his message was understood imperfectly, and "Bier's congestion" was taken to imply a venous stasis induced by elastic constriction verging on the degree

FIG. 1.—Bier's bandage applied to the upper arm. (The bandage is applied direct to the skin and secured by a small bit of adhesive strapping. There is no blueness or swelling of the forearm.)

at which capillary haemorrhage occurs. While Bier freely acknowledged that he got the idea from Thomas's method of treating delayed union of fractured bones and that he applied the short period of intense venous stasis in the treatment of tuberculous joints, he maintained that the method of using long-continued mild blood and lymph stasis in acute infections was a later evolution and a discovery of which he had reason to be proud.

If this discussion does nothing else than induce you to use mild passive hyperaemia in acute infections it will

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not have been in vain. I consider that a Bier's elastic bandage is the most valuable piece of apparatus a practitioner can possess, with the obvious proviso that he knows how to use it.

Besides this principle of seeking to localize infection whilst immunity is rising, two others immediately suggest themselves. Can we do anything by way of the blood stream (*a*) to kill off the infecting bacteria ; (*b*) to raise artificially the patient's immunity to their toxin? The era of effective chemotherapy would seem to have been inaugurated, and the discovery of the sulphonamide group of drugs has opened a new and hopeful chapter in the treatment of virulent infections. The use of antitoxic sera, although somewhat overshadowed during the past two years by chemotherapeutic measures, has now an imposing array of successes to its credit, and in severe infections of known character it should, if available, always be tried. Such measures as inducing free excretion by kidneys, skin, and bowels by copious libations of bland fluid, the replenishing of the liver by giving glucose in the drinks, favouring metabolism and sleep by sunlight and fresh air, all tend to aid the more specific forms of therapy.

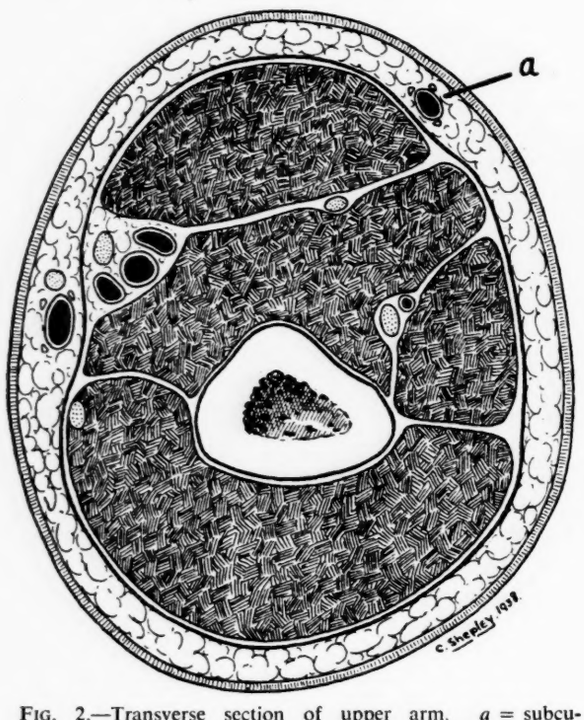

FIG. 2.—Transverse section of upper arm. *a* = subcutaneous vein with accompanying lymphatics.

The Pathological Anatomy

Kanavel, by his intensive study and analysis of hand infections and his differentiation of types and the anatomical approach in dealing with each, gave a new impetus and interest to the treatment. As in so many other regions of pathology, it is by the study of early stages that we observe the essential nature and the lines of spread of different infections. In the full-blown massive and oedematous infected hand it is ofttimes difficult to detect the true locus of the underlying infection. We have learned, however, to recognize the signs of tendon-sheath infection, of infections in the various palmar spaces, and of those in the deep forearm space. We now know the anatomical restrictions of the finger-pulp infection and the need for early opening when the infection gets a hold. We know the anatomy of the spread of pus in an acute paronychia, and the simple but important means of draining it effectively.

Acute Streptococcal Infection with Lymphangitis

When from a punctured wound or from a scratch virulent streptococci gain entrance to the tissues we may see within a few hours the evidence of their multiplication and their spread. The hot throbbing wound, the ache up the arm, the rigor followed by a sharp rise of temperature, indicate a severe infection. On examination there may be local redness and some oedema of a finger, some swelling of the dorsum of the hand, faint red lines up the forearm, and some tenderness in the axilla, all indicating a virulent and rapidly spreading infection. How is such infection best combated? The patient is put to bed and given copious diluent drinks. A warm moist dressing is applied to the hand and forearm and a few turns of a thin elastic bandage are wound *lightly* round the upper arm (Fig. 1). The bandage is applied direct to the skin in such a way that a gentle pressure obstructs the superficial veins and lymphatics and, without producing any blueness or duskiness, causes a mild lymph stasis in the limb (Figs. 2 and 3). The secret of successful application of the bandage is the abolition of pain. If pain is increased the bandage is too tight and must be reapplied. The elastic bandage may be left on continuously for forty-eight hours with advantage.

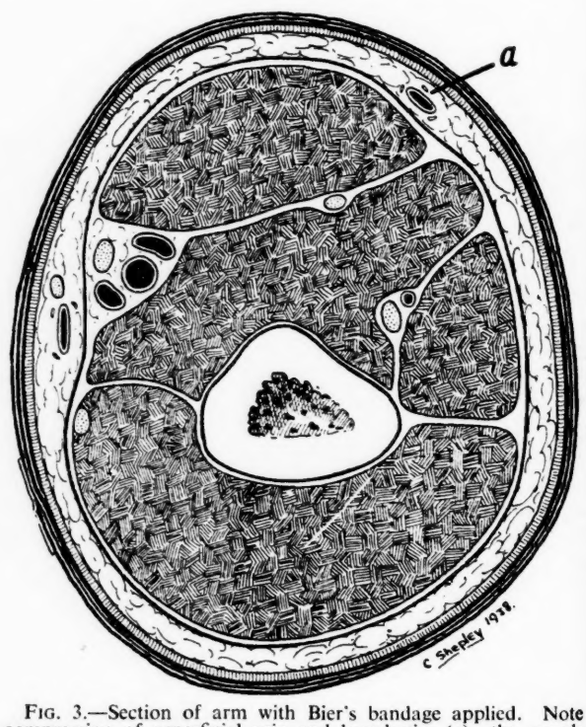

FIG. 3.—Section of arm with Bier's bandage applied. Note compression of superficial vein and lymphatics (*a*); the vessels beneath the deep fascia are compressed little if at all.

Recognizing from the physical signs the streptococcal nature of the infection, it is well to give without delay 30 c.cm. of streptococcal antitoxic serum after desensitization. At the same time treatment with one of the sulphonamide preparations is instituted. A careful watch is kept for the development and localization of pus in the hand and forearm, but no great haste is made to interfere locally unless there be signs of a finger-pulp or tendon-sheath infection.

The effect of lymph stasis in localizing the infection is in my experience remarkable, and skill in the application of Bier's elastic bandage is a great asset to all who have to treat such cases. The decision as to when a studied conservatism should give place to active surgical intervention requires nicety of judgment, but as a general rule it may be said that delayed is wiser than premature incision.

Finger-pulp Infection

Owing to its peculiar anatomical structure the finger pulp demands special attention. The dense fatty layer which forms the pulp is broken up into compartments by fibrous septa, which further bind the skin down to the bone. Any infection, with oedema and effusion, produces great tension within the pulp. The terminations of the digital arteries, including the branch to the distal phalanx, traverse the pulp and are exposed to the tension within it. This may be so great as to compromise the blood supply to the phalanx, and necrosis results.

It is obvious, therefore, that special anatomical conditions here determine early intervention. If within thirty-six hours of the onset of pain there is no sign of amelioration an incision made on one side of the distal phalanx is carried well down into the pulp, opening up its spaces. A counter-opening on the other side of the phalanx is sometimes desirable. Even after opening the finger it is wise to continue with the fomentations and the passive hyperaemia.

Tendon-sheath Infections

Spread of infection to a tendon sheath is heralded by severe pain and interference with the function of the finger. This is held in a position of semiflexion. Any effort to straighten it causes acute pain. Definite localized tenderness is met with on pressing over the proximal end of the tendon sheath in the case of the index, middle, and ring fingers, and over the line of the sheath in the case of the thumb and little finger.

As soon as infection of a sheath is diagnosed a general anaesthetic should be given, a tourniquet applied to the arm, and an incision made along one side of the proximal phalanx of the affected finger. The bulging sheath is incised, and, if purulent fluid escapes, further incisions may with advantage be made along the side of the second phalanx and in the palm. In the case of the thumb and little finger incisions must be made along the thenar and hypothenar eminences and at the wrist to drain the radial and ulnar bursae respectively. Hot saline baths and active movement of the fingers should be encouraged, as they favour drainage. Tubes and rubber drains are better avoided.

Palmar Space Infections

The infection of one or other of the palmar spaces, so clearly defined by Kanavel, may arise from an infected wound of the palm, by lymph spread from a finger, or by rupture of an infected tendon sheath. When due to the last-named the clinical features may be confusing, but the treatment is seldom in doubt. The spaces, being deeply situated, may contain pus under tension without obvious fluctuation being detectable. The dense palmar fascia offers an unyielding barrier to forward spread. The metacarpals and the interosseus muscles bar the way behind and pus is forced to travel along the lumbricals to the web between the fingers, where it bulges, points, and, if not opened, bursts. The drainage of these spaces, either from the web back along the lumbricals or by incising the palm—preferably the former—will, as a rule, lead to rapid improvement if no tendon sheath has suffered.

Forearm Infection

In some cases, and particularly those of neglected tendon-sheath or palmar space infections, swelling and oedema of the lower part of the forearm may suggest a deep-seated cellulitis. Suppuration in Parona's space—that is, beneath the flexor muscles and tendons and in front of the pronator quadratus—is diagnosed. When oedema and redness involve the lower half of the forearm and considerable tenderness is elicited over the front of its lower third and above the carpal bursa, then one may rest assured that pus is collecting in the deep forearm space. Without delay this should be opened under a general anaesthetic with a free incision, laying open the abscess on one side and a counter-opening for a drain on the other.

Amputation of Fingers

With severe tendon-sheath infection, even after reasonably early opening, it is no uncommon thing to find one or both flexor tendons sloughed. Not infrequently along with this the first interphalangeal joint becomes involved, with softened ligaments, shedding of articular cartilage, grating, and lateral mobility. We should realize that a stiff or tender finger may be a crippling handicap to the labouring man. It is always a keen disappointment at the end of many weeks of painful dressings for him to find that his trouble and patience have been in vain and that amputation is necessary. Sloughing of tendons, if accompanied as it so often is by disorganization of a joint, should point to amputation without undue delay. Gangrene of the distal part of the finger, met with in severe infections, is another indication for amputation. Amputation should never be performed when the inflammation is at its height. A little delay is beneficial, and helps to avoid any flare-up or central spread of infection.

Indolent Infections

A not uncommon type of infection, especially among field workers, is one associated with brawny induration, little tendency to pus formation, and slight general reaction. The usual signs of tendon-sheath or palmar space infection are difficult to determine, and indeed may never develop. In such cases short-wave therapy has been found of material value, and, if available, should always be employed. In some cases the infection may slowly resolve without suppuration but with a considerable period of disability; in others pus may eventually form in the palm or in the forearm and require evacuation by incision. Complete recovery from such low-grade infections may take many months, but eventually may be complete.

Rehabilitation in Hand Infections

The acute phase of infection commands our interest and attention: all too often the slow tedious phase of convalescence receives but scanty care. Almost without exception infections of the hand and forearm are followed by fibrosis with its attendant stiffness. The more protracted the suppuration the greater will be the resultant disability from cicatricial fibrous tissue. When pus has formed and has localized, generous incisions allowing of

the freest drainage will, by hastening resolution, diminish the subsequent fibrous contractures.

It is very desirable that those who are responsible for the treatment during the acute inflammatory phases should also supervise the subsequent treatment by physiotherapeutic means. While few would challenge the value of complete rest to the part during the early acute phase of inflammatory reaction, few would deny the benefits of active movement and of exercise once the florid spreading stage is over and the early dangers are past. Apart from the sloughing of tendons and the involvement of joints which give permanent stiffness, we have the adhesions in tendon sheaths, the fibrosis in the fascial planes between the muscles, the fibrous plaques which form where tissue was destroyed. If the thought of function be kept uppermost in our minds in conducting the treatment in the stages which follow that of the invasive process, we shall never permit the development of the unbreakable barriers to movement which determine crippledom in the neglected case.

The use of active and purposive exercise in restoring useful movement should govern the tedious period which follows that of nursing care. Massage and passive exercise have their place, but active movement, controlled and guided by the patient's will, is the effective element in treatment. If interest and achievement lend their spur to effort, the patient, progressing from one task to another designed to increase the range of certain movements, passes unconsciously from invalidism back to effective work. The workshop now forms an essential part of the equipment of the convalescent institution. Our responsibility for treatment does not end until the maximum of usefulness has been restored.

Summary

1. Acute infections of the hand should be treated in the first instance on conservative lines.

2. In very severe infections three measures may be employed: (*a*) lymph and venous stasis (Bier); (*b*) chemotherapy (sulphonamide); (*c*) passive immunity (antitoxic serum).

3. In certain areas—for example, finger pulp and tendon sheaths—anatomical considerations make early opening desirable.

4. As soon as the early dangers are past, efforts to restore function should begin, and they should end only when the maximum return of function that is possible has been attained.

At the eleventh British Congress of Obstetrics and Gynaecology, which, as already announced in these columns, is to be held at Edinburgh on April 4, 5, and 6, 1939, the chief subject for discussion will be pain in labour and methods of alleviation, to be introduced by Professor Chassar Moir of Oxford and Dr. John Sturrock of Edinburgh. The official guests of the Congress will be Professor Wagner (Berlin) and Dr. Samuel Meaker (Boston). Other communications will deal with genital hypoplasia, dysmenorrhoea, tubal infection, hyperemesis gravidarum, results of pregnancy toxaemia, trichomonas infection, male sterility, habitual abortion, and myometrial activity. A visit will be paid to the Department of Animal Genetics under the direction of Professor F. A. E. Crew. There will be a demonstration of pathological specimens, and those who desire to exhibit pathological material are asked to communicate with the local secretary of the Congress, Dr. Chalmers Fahmy, 7, Chester Street, Edinburgh, 3, from whom other information concerning the Congress may be obtained.

THE CORRECT NAME OF THE MALIGNANT TERTIAN MALARIA PARASITE

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Not only is the malignant tertian malaria parasite referred to under a multiplicity of colloquial names, such as malignant tertian, subtertian, aestivo-autumnal, and "tropica," but even the zoological name of this species is a constant source of difficulty and doubt to those who have occasion to use it. Thus the name now in most general use is *Plasmodium falciparum,* but many authors employ the names *P. praecox* or *P. immaculatum,* claiming that one or other of these is the correct specific designation. Uncertainty also exists as to whether this species should or should not be placed in the genus *Laverania,* and *L. malariae* and *L. falcipara* are names not uncommonly seen. Efforts to apply the rules of zoological nomenclature seem only to have added to the confusion.

The Present Position

Hitherto controversy has chiefly revolved around the question which of the specific names—*praecox, immaculatum,* or *falciparum*—has the strongest claim to validity. Before any detailed discussion is entered into it is desirable first to review very briefly the present position in respect to these names. Grassi and Feletti (1890b) gave the name *Haemamoeba praecox* to a parasite found by them in the blood of birds from a certain malarious region in Italy, and also, later in the same paper, to the then newly discovered asexual stages of the parasite of aestivo-autumnal fever in man, believing the two parasites to be identical. Later Grassi and Feletti (1891, 1892) gave the name *relicta* to the same or a similar parasite in the blood of birds. Sergent *et al.* (1929) consider that, although these authors gave the same name to the avian and the human parasite in the first place, they have by the subsequent naming of *relicta* automatically designated *praecox* as the human parasite, and that therefore the correct name for the latter species is *praecox.* This would be in accordance with a common procedure in zoological nomenclature—that is, where a name at first given has included two closely related species, one of which is subsequently designated by another name, the original name becomes applicable to the remaining species. Other authors (Schaudinn, 1903; Blanchard, 1905; Stiles, 1929) hold that the context in the original description shows that the name *praecox* was definitely given to the bird parasite, and that it must therefore be invalid for the human one, whatever subsequent procedure on the part of the authors may have been. In this case, if *praecox* be invalid for the human parasite, then some other name is required for it. Here again authors differ. Some hold with Schaudinn (1903) that the first valid name is *immaculatum,* used by Grassi and Feletti (1892); others that this name is also invalid and that the proper one for the parasite is *falciparum,* given by Welch (1897). It is pointed out by Blanchard (1905)

* The junior author desires to thank the Royal Society of London and the London School of Hygiene and Tropical Medicine for the financial assistance which has enabled him to continue his work on malaria.

that the name *immaculatum* was used by Grassi (1891), previous to being given to the human parasite, to designate a blood parasite of a bird—the kestrel (*Cherchneis tinnunculus*). In this paper Grassi goes on to say, just as was done with *praecox*, that he considers this avian parasite to be the same as the so-called "unpigmented parasite" reported in aestivo-autumnal fever in man, and on these grounds includes it in his list of human parasites. From such a point of view the name *immaculatum* must therefore be rejected for the human parasite for the same reasons as *praecox* was—namely, that the name was preoccupied by a bird parasite.*

The First Naming by Laveran

None of these arguments appears, however, to have sufficiently taken into account the circumstances relating to the first naming of the malaria parasite by Laveran, and the effect of such considerations upon the validity of the subsequent steps in nomenclature taken by Grassi and Feletti and others. In his book Laveran (1881a) gave the name *Oscillaria malariae* to the entirely new form of parasite discovered by him in the blood of malarial subjects. From the standpoint of zoological nomenclature everything depends on what description accompanied, or was referred to at, this first naming. It is immaterial what subsequent procedure in this respect was adopted by Laveran or any other author. Thus that Laveran later discarded the name *Oscillaria* as unsuitable has no relevance in deciding upon the correct nomenclature of this parasite. Also if the description clearly indicates the malignant tertian parasite and no other, then *malariae* is by right of priority the specific name of the malignant tertian parasite, independently of whether Laveran thought of the malaria parasite at the time as one or more species. Also if this description does so apply, then not only could there in this case be no other name having priority, but in no circumstances whatever should any other specific name (for example, *falciparum*) rightly replace it.†

After a careful examination of the original publications we have convinced ourselves that Laveran's description, given at the time of naming, relates with absolute certainty to the sexual forms of the malignant tertian parasites and to these only, whilst even in somewhat later descriptions (1882–4) no forms which can with certainty be assigned to any other species are included. The various descriptions given by Laveran at this period relate to four types of bodies, regarding which it is possible to say that bodies No. 1 were typical crescents, bodies No. 2 were exflagellating spheroid bodies, and bodies No. 3 "cadaveric forms" of Nos. 1 and 2. It is clear that all these forms were malignant tertian sexual forms. Laveran (1887) says: "A côté des éléments cylindriques en croissant on trouve presque toujours des corps ovalaires (E, fig. 4) qui paraissent être des formes intermédiaires aux corps sphériques et aux corps en croissant" (loc. cit., p. 270), and, in his book (Laveran, 1881a, p. 97), that "les éléments parasitaires du sang qui sont décrits dans ce travail sous les noms de corps No 1, No 2, et No 3 ne représentent probablement que trois phases du développement d'un seul et même parasite comparable aux oscillariées, vivant à l'état d'agglomération ou d'enkystement pendant une partie de son existence." Only in regard to bodies No. 4 can there be any doubt as to these not being forms of malignant tertian. These forms (No. 4) are, however, not mentioned in the description which accompanied the first giving of the name *Oscillaria malariae*. The reference commonly given in literature to such naming is "Laveran, 1881."

Two papers published in that year in scientific journals (vide Laveran, 1881c, 1881d) do not include any scientific naming of the parasite. Only in Laveran's book (Laveran, 1881a), which we had some trouble to obtain, is the name *Oscillaria malariae* given, as later referred to by Laveran himself and others (Richard, 1882, 1883). The words used are: "S'il était demontré que les filaments mobiles des corps No 2 sont bien réellement de l'espèce oscillariées, le nom d'*Oscillaria malariae* conviendrait bien au nouvel hématozoaire" (loc. cit., p. 87). From this it is evident that the name *Oscillaria malariae* was applied to the microgamete which Laveran believed to be the mature form of the parasite. All the forms described by him in this connexion—namely, bodies Nos. 1, 2, and 3—have been universally accepted by subsequent workers as sexual forms of the malignant tertian parasite. As regards bodies No. 4 (intracorpuscular forms) it is perhaps now impossible to say what species they represent, but it is by no means impossible that these also are forms of the malignant tertian parasite, for Laveran notes that he originally worked especially with material obtained from the organs of patients dead from pernicious fever (Laveran, 1882), and the larger intracellular forms figured by him are compatible with developing crescents or even older schizogonous stages of malignant tertian. No one can say that they are with certainty any other particular species (vide later remarks in this paper *re* the quartan parasite). Laveran then, when naming the parasite, was certainly mainly concerned with, if his descriptions did not entirely relate to, the malignant tertian parasite. He himself, when referring to some doubts as to the subsequent nomenclature, says: "J'ai décrit le premier les hémamibes comme les corps en croissant" (Laveran, 1891 ; footnote to p. 93).

Grassi and Feletti's Classification

Even, however, if it be not granted that Laveran's description of *malariae* referred to the malignant tertian parasite, this specific name would still hold good, since, as we shall see, at a later date it was clearly designated as this parasite by Grassi and Feletti ; for it is laid down that if two or more species have been included in an author's description under a given name (as has been maintained by some workers in regard to Laveran's name, but we believe without justification), and the same or another author later designates (as we shall show was done by Grassi and Feletti when they recognized the name *Laverania malariae* as pertaining to the forms seen by Laveran) one of these species as that to which such name applies, then this name for the designated species is valid, unless invalid on other grounds.

With such evidence as we have indicated above, we think that in ordinary zoological procedure Laveran's designation of the malignant tertian parasite as *malariae* would have been accepted unreservedly. Why, then, should subsequent authors maintain that Laveran described only the malaria parasite "in general" or the quartan in particular (vide the usual textbook statements)? It seems clear that this was done *not* on the merits of Laveran's description but in order to clear up difficulties in nomenclature subsequently created.

The clue to the confusion is to be sought in the names given to the parasites in the years 1890–2, when Marchiafava, Celli, Bignami, Grassi, Feletti, and other famous workers in the field of early malaria research made their pioneer observations. It is because it is difficult, looking back, to realize what the facts appeared like to these observers that we must be careful not to make unwarranted deductions based upon our present knowledge of these parasites.

* Workers using the name *immaculatum* for the human parasite usually refer to it as *Plasmodium immaculatum* (Gr. & Fel., 1892), whereas it should be *P. immaculatum* (Grassi, 1891), if this name is to be used at all.

† Vide Article No. 25 of the Rules of Zoological Nomenclature, which reads as follows: "The valid name of a genus or species can only be that name under which it was first designated, on the condition: (*a*) that this name was published and accompanied by an indication, or a definition, or a description; and (*b*) that the author has applied the principles of biniary nomenclature." For ease of reference to these rules the reader should consult Wenyon (1926) (p. 1336).

In 1890 Feletti and Grassi, from observations on the parasites of birds from healthy and malarious localities, and as a result of what was then known about the human malaria parasites, came to the conclusion that there were two kinds of these parasites—namely: (1) those resembling amoebae, which they called *Haemamoeba malariae* and which in man gave rise to the regular fevers (quartan and tertian); and (2) others of a peculiar morphology and character, as described by Laveran, which they called *Laverania malariae* and which they considered to be the cause of the irregular fevers. In the same year Grassi and Feletti (1890b), in a remarkable appendix added to the French transcript of an original paper in Italian (Grassi and Feletti, 1890a), (i) gave names to the two species of parasite (included in *Haemamoeba malariae* Feletti and Grassi, 1890) as shortly before differentiated but not named specifically by Golgi (1889)—that is, *H. malariae* (of quartan fever) and *H. vivax* (of tertian fever)—and (ii) added a third species, *H. praecox* (of quotidian fevers).* In the following year Grassi (1891) named yet another species, *H. immaculata*, also a parasite of the quotidian fevers. These last two species (*praecox* and *immaculata*), in so far as they can be held to apply to the human parasites, related to the asexual forms of the malignant tertian parasite of which Laveran had already described and named the sexual stages, though at that time this relationship was unknown to Grassi and Feletti. We have, then, in 1892 five names assigned to the malaria parasites of man, as set out by Grassi and Feletti (1892):

Laverania malariae. (The sexual forms of the parasite of malignant tertian malaria.)†

Haemamoeba malariae Grassi & Feletti. (The parasite of quartan malaria.)†

Haemamoeba vivax Grassi & Feletti. (The parasite of benign tertian malaria.)†

Haemamoeba praecox Grassi & Feletti. (Name applied to a parasite of birds and also to the asexual forms of the malignant tertian parasite.)†

Haemamoeba immaculata Grassi & Feletti. (Name applied to a parasite of birds and also to the asexual forms of a supposedly special type of the malignant tertian parasite.)†

Of these specific names the first stands, for we have shown that it was clearly given by Laveran to the sexual forms of the malignant tertian parasite and that there could be no question of any previous name. *H. vivax* remains valid for the so-called benign tertian parasite. *H. malariae* Gr. & Fel. (nec *H. malariae* Laveran) would also be valid to this day as applied to the quartan parasite, provided *Laverania* and *Haemamoeba* (= *Plasmodium*) are retained as two separate genera.

Classification in One Genus

At the present time probably very few authorities would support *Laverania* as a genus desirable on morphological grounds. Both Schaudinn (1903) and Blanchard (1905) thought that Grassi and Feletti were not justified in separating the genus *Laverania* from the genus *Haemamoeba* (= *Plasmodium*), and considered that all the human malaria parasites should be included in one genus —*Plasmodium*. This is the common usage at present. Schaudinn (1903) and Blanchard (1905) state that when *L. malariae* is absorbed in the genus *Plasmodium* the specific name *malariae* lapses for the malignant tertian parasite, because there is already a *malariae* (the quartan parasite) in the latter genus. This is an incorrect procedure, for it is the more recent specific name (that is, *malariae* for the quartan parasite) which should lapse in conformity with Article No. 35 of the Rules of Zoological Nomenclature, which reads as follows:

> "When, in consequence of the union of two genera, two different animals having the same specific or subspecific name are brought into one genus, the more recent specific or subspecific name is rejected as a homonym."

It is clear, therefore, that when one genus only is recognized for the human malaria parasites, the two names—*P. malariae* (Laveran) for the malignant tertian parasite and *P. malariae* (Gr. & Fel.) for the quartan one—cannot both be retained. In such a case, then, *P. malariae* (Gr. & Fel.), as applied to the quartan parasite, must sink as a synonym.

It is very interesting to note that Grassi and Feletti (1890b, 1890c, 1892) were perfectly correct in their procedure in giving their own name, *malariae*, to a parasite in what they considered to be another genus than that which contained Laveran's *malariae*, and that any error in this matter was one on the part of subsequent authors, who thought the name *malariae* Gr. & Fel. should obviously be *malariae* Laveran. It is a curious error, and one which has given rise to the erroneous solution of the puzzle in nomenclature by which the facts are squared only through maintaining that Laveran gave the name *malariae* to the malaria parasite "in general." Such a solution ignores the fact that *Haemamoeba malariae* Gr. & Fel. is a perfectly correct name so long as *Laverania* is maintained as a genus distinct from *Haemamoeba* (= *Plasmodium*). This error also logically demands the assigning to Laveran of the name of a species (the quartan parasite) which it is problematical he had seen at the time he gave the name *Oscillaria malariae*, and which he certainly did not then describe in such a way that it can be asserted that it was included in his original description of the malaria parasite.*

When, therefore, Grassi and Feletti recognized *Laverania malariae* as Laveran's species and erected two other species —*Haemamoeba malariae* Gr. & Fel. and *Haemamoeba vivax* Gr. & Fel.—they clearly designated (even if it be considered that Laveran had not already done so) the malignant tertian parasite as Laveran's species—that is, as the *malariae* which carries priority in any genus in which it may be placed.

We have endeavoured to ascertain at what period the specific name of the quartan parasite was changed from *malariae* (Gr. & Fel.) to *malariae* (Laveran), the former being perfectly correct so long as two genera are recognized, the latter totally erroneous whatever generic divisions be adopted. This error appears to have arisen about 1900, when Lühe (1900) speaks of the quartan parasite as "*Plasmodium malariae* (Laveran) s.str." In his classification of the malaria parasites a similar nomenclature is used by Schaudinn (1902), who designated under the name *Plasmodium malariae* (Laveran) the quartan parasite as the type species of the genus *Plasmodium*. Before this date we have been unable to find the name

* Later in the same year a similar classification was republished by these authors (Grassi and Feletti, 1890c).

† The remarks in parentheses are ours.

* Some workers appear to believe that the parasite first observed and named by Laveran was the quartan one. There is no doubt that this author (Laveran, 1891) figured and referred to certain parasitic forms ("bodies No. 4") from a case of quartan fever which strongly suggest segmenting forms of this plasmodium. He goes on to say, however, that such bodies were seldom seen by him, and assigns to them a very secondary place. He also states that these forms were seen in the blood of a case studied by him in September, 1881, and the protocols of his cases suggest that the exact date was September 17 (vide Case No. XXXIV, loc. cit.). We can find no mention of such forms in the book that contains his original definition of *Oscillaria malariae* (Laveran, 1881a), which book he presented to the Académie de Médecine on May 3, 1881, apparently before he encountered the quartan-like forms depicted by him. It seems very improbable, therefore, that this author had noted such forms when he gave the name *O. malariae* to the parasites discovered by him. Such a conclusion is strengthened by the fact that in his paper of October 24, 1881 (Laveran, 1881c), he speaks of bodies No. 4 for the first time. From a very careful study of his early works we have been unable to find any description of parasites which are clearly recognizable as quartan, either before or at the time when he first used the name *O. malariae*. We can therefore discover no foundation for the belief that the parasite first observed and described by Laveran was the quartan one.

malariae, as used for the quartan parasite, attributed to any other authors than Grassi and Feletti, whilst after this date the name *malariae* (Laveran) appears to have been generally adopted by workers in most countries (vide Stiles and Hassall, 1925; Wenyon, 1926; Doflein, 1929; Muhlens, 1931; Brumpt, 1936). Although Opinion No. 104 of the International Commission on Zoological Nomenclature (1928) gives *malariae* (the quartan parasite) as the type species of the genus *Plasmodium*, no author is quoted.

It follows, if *P. malariae* (Gr. & Fel.) cannot be used correctly for the quartan parasite, when only one genus is recognized, that the correct name of this parasite must be the next valid name given to it. Unfortunately Golgi (1889), who actually differentiated the quartan and the benign tertian parasites on their morphological characters, did not give these any other names than "parassiti malarici nella febbre quartana" and "parassiti malarici nella febbre terzana," which designations are not in Linnaean form and therefore are not valid in scientific nomenclature. The first authors to employ a correct Linnaean nomenclature for the quartan parasite seem to have been Celli and Sanfelice (1891), who used the name *Plasmodium malariae* var. *quartanae* for this species. We believe no objection can possibly be raised against the name *quartanae* as given in Linnaean form by these authors.* The correct specific name (*de jure*) for the quartan parasite appears, therefore, to be *quartanae* Celli and Sanfelice, 1891.

The Genus Oscillaria

It is still necessary to consider the validity of Laveran's genus *Oscillaria*. It is generally accepted that this name is invalid because preoccupied by *Oscillaria* Schrank, 1823, given to a genus of algae. If this were the only ground of objection there could be no question that Laveran's name, being given to an animal, could not strictly be counted as preoccupied by a genus of the vegetable kingdom, though it is held undesirable to have the same name for two genera among the Protista. Actually it is certain from the context that Laveran in this case did not propose a new genus, but placed his parasite in that class of lowly organisms which at the time seemed to him most appropriate, this being Schrank's genus *Oscillaria*, which was erected for certain algae characterized by their peculiar animal-like movements. Even then, however, if one follows Article No. 1 of the Rules of Zoological Nomenclature, which reads thus:

> "Zoological nomenclature is independent of botanical nomenclature in the sense that the name of an animal is not to be rejected simply because it is identical with the name of a plant. If, however, an organism is transferred from the vegetable to the animal kingdom its botanical names are to be accepted in zoological nomenclature with their original botanical status, and if an organism is transferred from the animal to the vegetable kingdom its names retain their zoological status"—

it is difficult to see that Laveran's genus *Oscillaria* could rightly be considered invalid—in which case it would take precedence over *Plasmodium* Marchiafava and Celli, 1885. It is sometimes argued that the name *Oscillaria* is invalid because it was afterwards rejected by Laveran on account of inappropriateness; but, once given, even the author himself cannot reject a name for this reason (vide Article No. 32 of the Rules of Zoological Nomenclature).

It is not the intention of this paper to suggest that the names of the malaria parasites should be changed in accordance with the above findings. Such changes would now cause almost intolerable confusion. Fortunately they would not even be correct, for zoologists have agreed that where a formal decision upon a name has been given by the International Commission on Zoological Nomenclature the name so fixed is the correct one for usage independent of all other considerations. Such a decision is given in Opinion No. 104 of this Commission (1928), which reads as follows:

> "*Laverania* Grassi and Feletti, 1890a, 60, mt. malariae (homonym) so. *falcipara* Welch, 1897, 36, 47, type host *Homo*. (For authors who consider the parasite of aestivo-autumnal malaria generically distinct from that of quartan fever.)* Not *Laverania* Labbé, 1899a, 82, type *ranarum*, type host *Rana esculenta*."
>
> "*Plasmodium* Marchiafava and Celli, 1885d, 791, mt., tsd. malariae (as restricted to quartan fever), type host *Homo*."

This decision does not prevent the sinking of *Laverania* Gr. & Fel., 1890* in *Plasmodium* March. & Celli, 1885, on zoological grounds unconnected with terminology. It does, however, clearly rule out *Oscillaria* Laveran, 1881, and also, arbitrarily and possibly wrongly but none the less authoritatively, all such questions of *de jure* nomenclature as have been discussed above. Nevertheless it ought to be pointed out that (1) *apart from* the malignant tertian parasite, there is in our opinion no description corresponding to *malariae* Laveran, 1881, and (2) the type species of the genus *Plasmodium* as recorded by Schaudinn (1903), by Blanchard (1905), by Stiles and Hassall (1925), and other authorities, is the quartan parasite, which has been given by them under the above *nomen nudum*.

Conclusion

Our object, then, in writing this note is to show how impossible at present would be the use of the correct names *de jure*, and the desirability of conforming to the agreed-upon convention of accepting names formally decided upon by the International Commission. The only loophole here would appear to be the possibility that, in the Opinion quoted, it is the generic names which are being fixed and that the validity of the decision does not extend to the specific designations given for the genotypes. This, however, would appear to be an objection overruled by the obvious need for uniformity and the opportunity of arriving at such uniformity on a reasonable basis given by the existing ruling. The only alternative would be a renewed application to the Commission (which perhaps is scarcely necessary, since usage in the main is now in accordance with what it would be desirable to recommend), that the names now most commonly used—that is, *P. falciparum* (Welch, 1897), *P. malariae* (Gr. & Fel., 1890), and *P. vivax* (Gr. & Fel., 1890)—be fixed by still more definite authority, the changes involved in a return to the strict *de jure* naming being too great a price to pay for theoretical correctness.

For the sake of clarity we append what we consider to be the nomenclature *de jure* and *de facto* of the three classical species, as this would be (*a*) if only one genus of malaria parasites be recognized, and (*b*) if a separate genus be used to include the malignant tertian parasite only.

* Article No. 12 of the Rules of Zoological Nomenclature reads: "A specific name becomes a subspecific name when the species so named becomes a subspecies, and vice versa."

* The usual authority given for the genus *Laverania* is Grassi and Feletti (1890). The first paper published by these workers in that year appears to be dated March 23 (Grassi and Feletti, 1890a), and in it they refer to the genus "*Laverania nobis*." The term *Laverania* is used, however, previously to this by Feletti and Grassi (1890), whose paper is reprinted from *La Riforma Medica* of January 15. The latter designation of the genus *Laverania* would therefore have precedence over that of Grassi and Feletti (1890a) so that according to this the genus should be *Laverania* Feletti and Grassi, 1890. On the other hand, Blanchard (1905) (p. 443 and footnote on p. 449) gives the first reference to the genus *Laverania* as follows: "R. Feletti et B. Grassi. *Sui parassiti della malaria*; 8° de 11 p., 22 déc. 1889.—La brochure est datée du 22 décembre, mais n'a été remise à la poste que le 30 décembre" ("distribuée le 30 décembre"). We have not been able to consult this pamphlet, but it would seem from this that the earliest authority for the genus *Laverania* is not Grassi and Feletti, 1890, but Feletti and Grassi, 1889.

(*A*) *Nomenclature* De Jure

Fever	If Only One Genus of Parasites	If Two Genera of Parasites
Benign tertian	*Oscillaria** *vivax* (Gr. & Fel., 1890)	*Plasmodium vivax* (Gr. & Fel., 1890)
Quartan ..	*Oscillaria** *quartana* (Celli & Sanfelice, 1891)	*Plasmodium quartanum* (Celli & Sanfelice, 1891)
Malignant tertian	*Oscillaria** *malariae* Laveran, 1881	*Oscillaria*† *malariae* Laveran, 1881*

(*B*) *Nomenclature* De Facto

Fever	If Only One Genus of Parasites	If Two Genera of Parasites
Benign tertian	*Plasmodium vivax* (Gr. & Fel., 1890)	*Plasmodium vivax* (Gr. & Fel., 1890)
Quartan ..	*Plasmodium malariae* (Gr. & Fel., 1890)‡	*Plasmodium malariae* (Gr. & Fel., 1890)‡
Malignant tertian	*Plasmodium falciparum* (Welch, 1897)	*Laverania falcipara* (Welch, 1897)

* Unless the Recommendation to Article No. 1 of the Rules of Zoological Nomenclature, that it is undesirable to have two genera of the same name in the zoological and botanical kingdoms, is to be regarded as a strict *rule*, which status it does not appear to possess. In that case the generic name here would be *Plasmodium*.

† Similarly, if the Recommendation to Article No. 1 is to be regarded as a strict rule the generic name here would be *Laverania*.

‡ In Ruling No. 104 of the International Commission on Zoological Nomenclature (1928) no author's name is given for the specific name of this parasite. As discussed in the text, we consider that this entitles us to use *P. malariae* (Gr. & Fel., 1890), not *P. malariae* (Laveran, 1881) as so commonly employed in recent years.

In short, Laveran gave the name *malariae*, not to all species of malaria parasite "in general," but to the malignant tertian parasite, which name this parasite should have rightly retained. Grassi and Feletti did not ascribe Laveran's name *malariae* to the quartan parasite, but gave their own name *malariae* (in the genus *Haemamoeba*), which name, however, sinks when one genus only is accepted to include both forms. The names *praecox*, *immaculatum*, and *falciparum* are all synonyms in so far as they are applied to malaria parasites of man. Acceptance of Opinion 104 of the International Commission on Zoological Nomenclature offers, however, a means, based on authority, of establishing the present most commonly used names of the parasites and so avoiding the confusion which would undoubtedly arise from any attempt now to allocate correct names *de jure* to these parasites. Hence the most desirable names for general adoption are *P. falciparum* (the malignant tertian parasite), *P. malariae* (the quartan parasite), and *P. vivax* (the benign tertian parasite).

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MANAGEMENT OF TRIAL LABOUR AND SELECTION OF CASES

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The Justification for Trial Labour

"Any measure which will reduce interference in labour, including induction and Caesarean section, and will increase the number of spontaneous labours, will contribute largely to the reduction of maternal mortality." These words of Bourne (1934), separated from their context, express concisely the prime reason for the introduction of the procedure known as trial labour. It is to be regretted that this test has lately fallen somewhat into disrepute in certain areas, chiefly, in my opinion, owing to improper selection of cases and to incorrect management of labour.

It is primarily intended for those cases complicated by a moderate degree of disproportion in which it is considered that, if the patient will co-operate, the normal mechanism of labour is not disordered, and the uterine action is satisfactory, vaginal delivery will take place without serious damage to mother or child. It should never be regarded as a test of endurance of the mother in the hope "that the skull will collapse before the uterus gives out" (Walker, 1936). It has been pointed out by Brown (1935) that, in spite of an enormous increase in the number of patients treated by Caesarean section and by the induction of premature labour during the last twenty or thirty years, the percentage of cases of difficult labour has not diminished. The simple fact that it is impossible to foretell how the uterus will act during labour introduces that element of doubt which justifies the employment of trial labour in carefully selected cases in preference to operative procedures.

Cook (1934) states the case for trial labour in the following terms: "Let us take ten cases of potential disproportion, in any of which obstructed labour may result. Before labour has been in progress we are unable in doubtful cases to determine those in which spontaneous delivery will eventuate. And it is well to admit this. Let us say, as a matter of experience, that spontaneous delivery will occur in nine out of the ten doubtful cases

of disproportion. Beforehand, let us frankly admit that we do not know which particular nine out of the ten will be thus favoured. There are three courses open to us. We can either perform ten Caesarean sections before the onset of labour or we can induce labour in all ten cases . . . or we can 'wait and see.' If we adopt the first of these procedures we have to reflect that we have performed nine unnecessary Caesarean sections. . . . If we adopt the second procedure, that of induction, we have performed nine unnecessary inductions, with the attendant disadvantages thereof." Further, there is little to prevent us repeating this error in future pregnancies (Brown, 1935). When trial labour is adopted, spontaneous or instrumental delivery per vaginam will be possible in the majority of cases, and in the remainder delivery by lower segment Caesarean section should not seriously increase the risk to the mother in properly controlled cases. The procedure is therefore one which will reduce interference in labour and increase the number of spontaneous labours.

The Choice of Case

When a primigravida or a multigravida who has not previously had a labour at term presents herself at the thirty-sixth week of pregnancy with evidences suggestive of possible disproportion, such as skeletal deformity or non-engagement of the foetal head in the pelvic brim, she should be subjected to a thorough examination. This, although concentrated upon the abdomen and pelvis, should not overlook such factors as age, disposition, and evidences of organic disease—for example, asthma, bronchitis, and heart disorders—which might influence the decision as regards the suitability of the case for trial labour. As a rule, a history of previous confinements will prove invaluable in prejudging the case of a multigravida.

Routine abdominal examination is carried out with the bladder and rectum empty, special attention being directed towards the presentation and position of the foetus, the size and degree of flexion of the foetal head, and its relation to the pelvic brim. Only cases in which the vertex is presenting are suitable for trial labour, so external version should be performed whenever possible for breech presentation, and an occipito-anterior position, because of the simpler mechanism involved, is more favourable than an occipito-posterior one. The size of the foetal head is of importance, as this is a variable factor upon which a great deal depends, and it should be remembered that deflexion usually tends to increase its apparent size. The foetal head may be fitted into the pelvic brim in order to assess the degree of overriding of the pubes. An assistant places a hand over the foetal breech to arch the back forwards and direct the head into the pelvic brim. Excessive lateral flexion of the foetal trunk should be avoided, as this will cause exaggerated asynclitism and will falsify the findings. The head is then grasped by the examiner's left hand with a reversed Pawlik's grip and pressed down into the pelvic brim, while the fingers of the right hand decide to what extent the head has descended and to what degree it overrides the pubic bones. Sometimes helpful information may be obtained by fitting the head into the pelvic brim with the patient in a sitting position. External pelvic measurements may be taken, in order to make the record as near complete as possible, but they cannot be relied upon to give guidance in the management of the case.

The investigation should be continued by vaginal and vagino-abdominal palpation, carried out whenever necessary with the patient under general anaesthesia. The foetal head is palpated, especial attention being paid to its size, pliability, and degree of engagement in the pelvis. The width of the accessible sutures and the size of the fontanelles are determined, and the position is confirmed. The head is then fully flexed and fitted to the pelvic brim in a manner similar to that described above, and the degree of disproportion is estimated by Müller's and Munro Kerr's methods. The degree of descent on pressure is observed, and attention is paid to the angle between the anterior parietal bone and the posterior surface of the pubes, which tends to be more acute as the head descends into the pelvis. The diagonal conjugate is measured on the fingers and the true conjugate is estimated therefrom, allowance being made, when necessary, for unusual inclination of the pubes. The accessibility of the pelvic brim to the palpating fingers and the shape and capacity of the pelvic cavity—of especial importance in the differentiation between a flat and a generally contracted pelvis —are determined. The pelvic outlet is measured by the knuckle test, the width of the subpubic angle is noted, and the elasticity of the perineum and degree of mobility of the pelvic joints, especially the sacro-coccygeal joint, are assessed. It will be appreciated that these particulars can only be satisfactorily determined in late pregnancy. In a borderline case the results of *x*-ray examination may confirm or contradict the clinical findings and may to some degree influence the decision as to the most suitable course to be taken.

This examination may with advantage be repeated in part or in whole about a week before term to confirm the previous findings and to note changes which have occurred after the previous examination. The information is reviewed and a final decision as to the management of labour is made. All examinations should be conducted by the accoucheur in charge of the case, who will personally conduct the labour.

When gross disproportion is present and when the disproportion is of such a degree that it is considered that vaginal delivery would not be possible without appreciable risk to the mother or child, Caesarean section at term will be necessary. When disproportion is absent or is considered to be insignificant, the case is marked as satisfactory, and normal or low forceps delivery will be anticipated. If the disproportion is of moderate degree and it is considered that, with adequate moulding of the foetal skull, spontaneous or instrumental delivery per vaginam should be possible, provided that no complication such as uterine inertia or disordered mechanism arise during labour and that the patient is a suitable subject, trial labour will be the course of choice.

Management of Trial Labour

Trial labour should always be conducted in hospital, where facilities will be available for proper nursing attention, for effective aseptic and antiseptic precautions, and for any operative procedures which may prove necessary during the course of labour. The doctor in charge of the case should be available throughout labour and should see his patient at frequent intervals.

Labour is allowed to start spontaneously and to proceed as in a normal case, every care being taken to prevent exposure to infection. The usual light diet given during the first stage of labour is supplemented by a generous supply of sweet fruit drinks, and exhaustion is avoided by the judicious use of sedatives. An aperient followed by an enema should be given at the onset of labour, and the greatest care must be taken to see that the bladder is effectively emptied at regular intervals not exceeding two hours in duration. Bearing-down efforts on the part of

the patient must be firmly discouraged, to diminish the risk of exhaustion, premature rupture of the membranes, cervical oedema, and consequent prolongation of labour. The temperature should be taken early in labour and hourly after rupture of the membranes. The maternal and foetal heart rates should be recorded hourly during early labour, half-hourly during the later first stage of labour, and quarter-hourly after the membranes have ruptured.

After reviewing the general condition of the patient the abdomen is examined at intervals during labour in a manner similar to that described for the ante-natal period, special attention being directed towards the descent of the foetal head and the force of the uterine contractions. Vaginal examination is necessary only immediately after the membranes have ruptured or when descent of the foetal head seems to have been arrested in spite of good contractions after several hours in strong labour. It is advisable to pour a quantity of 1 in 1,000 acriflavine in glycerin into the vagina before introducing the fingers, and only the accoucheur in charge of the case should be allowed to examine. In addition to the particulars observed at the ante-natal examination several further points must receive attention. The presence or absence of oedema of the hypogastrium and vulva, and the state of the vaginal wall—whether normal and moist, or hot, dry, and oedematous—are noticed. The degree of thinning and dilatation of the cervix, the presence or absence of cervical oedema, and the relation of the cervix to the presenting part—whether closely applied or drooping in a skirt-like manner into the vagina—are determined. Special attention is directed to the foetal membranes to decide whether they are intact or ruptured; if they are intact, whether they bulge to a normal or abnormal degree during pains; and if they are ruptured, whether or not a loop of umbilical cord has prolapsed into the vagina. The position and degree of engagement of the presenting part, the amount of moulding, and the size of the caput succedaneum are also defined. These seemingly elementary points can prove of considerable importance in approaching a decision as to future treatment in a difficult case. All findings at each examination should be carefully recorded in order that the progress of labour may be accurately followed.

Termination of Labour

Favourable signs observed during the course of labour are good behaviour on the part of the patient, the occurrence of regular normal uterine contractions, good head flexion, a normally dilating cervix closely applied to the presenting part, absence of cervical oedema, and persistence of the intact bag of waters until the cervix is almost fully dilated.

When the foetal head has entered the pelvic cavity labour may be allowed to proceed, and a normal delivery may be anticipated in the majority of cases. In a certain proportion of cases maternal or foetal distress may become evident, and it may be considered advisable to terminate labour forthwith by a low forceps operation. Evidences of maternal distress upon which reliance is usually placed are deterioration in physical appearance in spite of proper care during labour, with a rising pulse rate and temperature. Foetal distress is usually shown by disordered action of the foetal heart. This may be excessively rapid or abnormally slow, irregular in rhythm or variable in rate. A foetal heart rate, previously normal, rising to over 160 beats or falling below 120 beats per minute, an irregular rhythm, or a heart rate rising steadily and then falling in a comparatively short time, even though still within normal limits, is suggestive of foetal hazard. The timing of the delivery necessitates careful judgment, as extraction may be more difficult if performed too soon and may therefore endanger the life of the child and increase the risk of damage to the mother, while delay may result in intra-uterine death of the foetus. If in doubt timely application of the forceps, in the absence of contraindications, and slow extraction are the best principles to follow. The child must be treated with great gentleness both during and after delivery (Hunter, 1937a). Rapid delivery may precipitate death in a distressed foetus. Episiotomy is performed, when necessary, by an L-shaped incision of the perineum, which must be carefully sutured in layers after delivery. Adequate time should be allowed for placental separation during the third stage.

In a minority of cases it is necessary to terminate labour by Caesarean section, the trial being considered to have demonstrated delivery per vaginam to be impracticable. Lack of advance of the foetal head in spite of satisfactory contractions an hour or more after rupture of the membranes, excessive moulding and caput formation without progress, and early evidences of obstructed labour are usual indications; and signs of maternal or foetal distress becoming evident while the greatest diameter of the foetal head remains above the pelvic brim sometimes hasten the decision to deliver by way of the abdomen. Relative indications also include increasing oedema of the cervix and lack of intelligent co-operation on the part of the patient. Lower segment Caesarean section is the procedure of choice, but in rare cases, if this is rendered more than usually difficult by oedema of the bladder wall, hypogastric oedema, or excessive vascularity of the lower uterine segment, it may be necessary to substitute the classical operation (Hunter, 1937b). Operations involving destruction of the foetus have no place in the management of properly conducted cases of trial labour.

While the above instructions have been expressed in a dogmatic manner for the sake of clarity, it must be appreciated that a certain amount of elasticity must be allowed in dealing with cases of this class, a great deal depending upon the personal judgment of the obstetrician concerned.

Management of Subsequent Confinements

Certain conclusions may be drawn from a completed trial labour. It may be considered that normal delivery may be anticipated in future if the labour has terminated satisfactorily, but it must be borne in mind that in multiparous patients the foetus tends to get bigger with subsequent pregnancies, and the patient should therefore be examined afresh on each occasion. If difficulty of a moderate degree has been encountered it may be decided that induction of premature labour will be necessary in any subsequent pregnancy. When greater difficulty has arisen, especially if Caesarean section has proved to be necessary, it will probably be decided that this operation should be performed before the onset of labour on future occasions.

Summary

Trial labour is a conservative procedure, the employment of which is justified by the element of doubt existing primarily as to the efficiency of the uterus before labour has begun.

The procedure is applicable to cases in which, although a moderate degree of disproportion is present, delivery per vaginam without undue damage to mother or child

is thought to be possible, provided that complications do not arise during labour.

The selection of cases for trial and the management of labour are of first importance. A suggested routine is described.

The decision as to the management of future confinements may be based upon the experience gained from a trial labour.

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ACUTE ANTERIOR POLIOMYELITIS

FOUR SIMULTANEOUS CASES IN A SCHOOL

BY

G. O. BARBER, M.A., M.B., B.Ch.

The occurrence of four simultaneous cases of anterior poliomyelitis in a boys' boarding school has afforded an interesting opportunity for inquiry into the possible method of infection, and the evidence suggests a route which might be worthy of further experimental investigation.

History of the Outbreak

On July 15 four boys were admitted to the sanatorium from the same house for different groups of symptoms, which are given below in detail in each case history. No boy seemed really ill, and all were put to bed for observation. By the next morning it seemed evident that they bore a major resemblance to one another, each suggesting a more or less severe disturbance of the central nervous system in its earliest stage. A fifth case was admitted as suspicious, but it was soon seen that no physical signs were present. There was sufficient justification to call in expert advice, and the four boys were seen that afternoon by Sir Charles Wilson and Drs. Camps and Maclean, who confirmed a provisional diagnosis of acute anterior poliomyelitis. Lumbar puncture was done on three of the cases. On July 17 three of the boys showed definite signs of paralysis of more than one group of muscles; the fourth showed definite weakness in one muscle of the arm only, and continued alteration of the abdominal reflexes. The fifth was definitely settled as negative.

On July 22 Dr. Brinton saw the four cases after paralysis had set in, and assessed the amount of paralysis in each case. Further details of the cases are supplied in the table.

Shortly after the notification of these cases information was received that six others had occurred during the previous fortnight in villages about ten miles away, on the opposite side of Braintree. During the subsequent eight weeks cases were notified scattered throughout the district of Essex surrounding Braintree, which is the largest town in the neighbourhood. But there were many villages and small towns within the area which were without a case. The accompanying chart shows all cases on the days of their first development, and their distances from Braintree, where the largest number of cases eventually occurred.

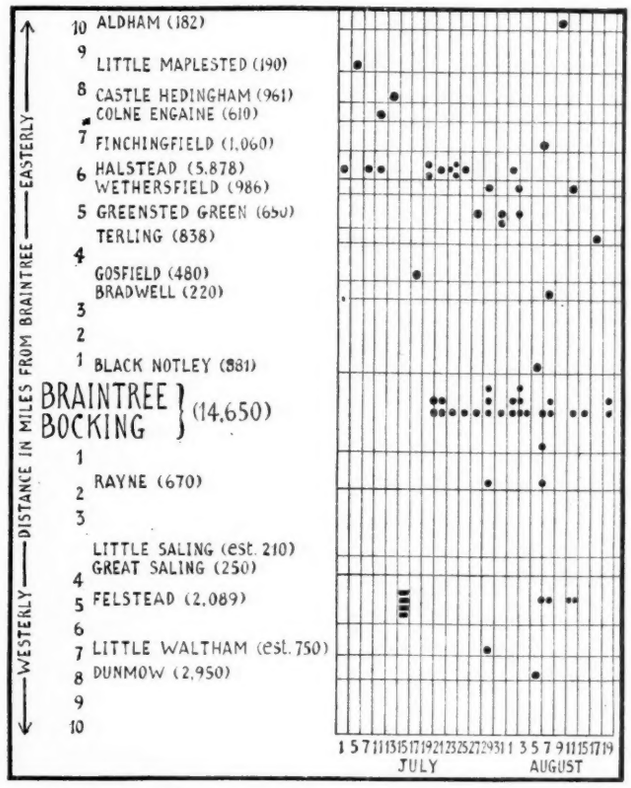

CHART I.—Date of onset of cases occurring in Braintree and the surrounding district. (The figures in parentheses refer to the population.)

Possible Sources of Infection to the Four Schoolboys

As the four cases in the school all occurred on the same day, and none are recognized as having occurred there before or afterwards, a close analysis was made of the daily habits and lives of these four boys in order to discover any factors common to all four which would point to the source of infection. It certainly appears unlikely that the presence of a carrier *in* the house was the explanation, as one would then expect a series of cases at intervals rather than such an isolated batch. But it is important to note that cases did appear later in the village, and that two of them occurred in the family of one of the maids employed by and living in the house. These cases were attributed to the maid having carried the infection home. As she was in the house for the rest of the term and no further cases occurred there, and as one attempt to infect a monkey from her proved negative, there is no actual evidence in our present state of knowledge that she was in fact a carrier. Analysis shows:

1. All the four cases occurred in the same house of fifty boys. This house has separate feeding arrangements and a separate domestic staff from the rest of the school.

2. Inside the house only two of the boys slept in the same dormitory; these two were quite friendly and sat near each other in the dining-room. The other two were in different dormitories, and each was unconnected with the others in any activity.

3. In the house-room all four were in different corners, and one of them was only present occasionally as a house prefect.

4. In the school all four were well scattered, being in different classes and other categories.

Table showing Particulars of Cases

	School Details	Previous Symptoms	Symptoms on Admission	Physical Signs on 16/7/38	Later Physical Signs	Lumbar Puncture	Muscles	
							Paralysed	Weak
Case 1	Aged 17. Form VI. Dormitory 3	Two weeks before dull diffuse headache. One week before felt run down, due to pressure of exams.	Headache. Anorexia. Dizziness. Constriction around chest. Hazy vision	Temp. 103° F. Tongue furred. Nasopharynx injected. Optic fundus congested. Stiff neck; weakness in trunk muscles and dorsiflexors of feet. Reflexes: Pupils react R.>L. Absent abdominals. K.J. very diminished. Plantar flexor weak	Diminished reflexes of upper limbs. Temperature fell to 98.4° in six days; remained normal	Specimen grossly contaminated with blood		All upper limb muscles including pectorals. Trunk muscles; spinal; recti abdom. R>L. Dorsiflexors of glutei and ankles
Case 2	Aged 16 Form IVb. Dormitory 1	Epistaxis. Vomited one night before	Headache. Anorexia. Dizziness. Stiffness and feeling of weakness in lower limbs and back. Epistaxis	Temperature 101° F. Tongue very furred. Throat dry. Optic fundus congested. Stiff neck, rigid, weakness in sitting up; pain in lumbar muscles; pain on leg movement Reflexes: Pupils react equal. Abdominals: R. lower absent. K.J.: R. only reinforced; L. weak. Plantar flexor weak	Abdominal reflexes disappeared. K.J. absent Temperature rose to 99° at night for three weeks	Clear. No raised pressure. Sugar nil. Lymphocytes increased. Some blood cells	Extensors of knees. Dorsiflexors of ankles	Adduction of shoulders? Diaphragmatic muscles. Other muscles of lower limbs
Case 3	Aged 15. Form IVc. Dormitory 2. In dining-room sits next Case 4	One week before fell on head; headache for three days. Three days before sleepless, restless, and shivering	Headache. Anorexia and nausea. Dizziness. Stiffness of neck and feeling of extreme weakness and lassitude	Temperature 102° F. Tongue furred. Stiff neck; pain in back on movement; weakness in sitting up; cramps in legs. Reflexes: Pupils react equal. Abdominals absent. K.J.: R. only when reinforced: L. present. Plantar flexor weak. Kernig's, mild plus	Weakness in arms. Flaccid paralysis of legs. Temperature normal after eight days but rose to 90° F. each night for three weeks	Clear. Pressure plus. Sugar normal. Cells 10 per c.mm. Chlorides 750 mg. per 100 c.cm. Protein 20 mg. per 100 c.cm.	Dorsiflexors of L. wrist. Lower limbs complete (18/7/38)	All upper limb muscles, especially adduction of shoulders and extension of elbows. Diaphragm. Erector spinae. Glutei
Case 4	Aged 15. Form IVa. Dormitory 2. In dining-room sits next Case 3	Two days before headache after being hit on the head with a cricket ball	Headache. Nausea. Dizziness. Pain in chest on coughing	Temperature 102° F. Tongue furred. Abdominal reflexes absent, except weak lower R.	Absence of deep reflexes of left arms. Absent right biceps jerk (left-handed boy). Left grip and extensors weaker than right. Abdominals back to normal. Temperature normal after five days, but rose intermittently for a fortnight	Lumbar puncture not done		Left dorsiflexors of wrist and left extensors of elbow
Suspect	Aged 15. Form Lower VIa. Dormitory 6	Headache three days before with lassitude. Five days before, stiff in arms and legs, after lying on damp grass	No headache or any other symptoms. Pain in chest	Temperature 99° F. Tongue furred. Central nervous system all normal	None. Temperature normal after six days			

Investigation into the Food Supply

The only common factors appeared, therefore, to be as stated above in paragraph 1—namely, the same feeding arrangements and contact with the same domestic staff. So far as can be ascertained there was no occasion when any outside person was in the house in a temporary capacity, save for one "old boy" visitor; and contact with the domestic staff did not vary significantly from day to day so as to cause infection to all four boys on one day only. Speech Day had been held on July 1, when there was a large influx of parents and relations; but here again there was no occasion when this one house only was in contact with one particular outsider or group. The tendency on that day is for the whole school to mix more thoroughly than usual.

The supply of food was investigated as a matter of routine only, as the present ideas of the transmission of the virus point to a nasal route through the cribriform plate and the olfactory bulbs. There are, however, eminent upholders of the gastro-intestinal route (Toomey, 1934; Kling, 1937). And Walshe (1927), in his description of the clinical course of the disease, stresses the fact that in the pre-paralytic stage there are signs of a general infection with changes in the gastro-intestinal tract and its associated mesenteric glands before the central nervous system shows signs of being affected.

The following are details of the food supply: Milk is supplied to the whole school by the same dairy. Water is from a well in the house; this has been in continuous use for many years. Analysis on August 2, 1938, for what it is worth, showed satisfactory chemical and bacterial purity. Bread is supplied from the same source as the rest of the school. Butter comes from a large store in a neighbouring unaffected town. Fresh fruit and vegetables are obtained from a fruiterer in Braintree who supplies this house only. I happened to remember that the house has an annual treat of strawberries, and on inquiry I found that this occurred on June 27 and 29, and that the strawberries came from two farms, one of them at Halstead.

Here was a definite connexion with the other area which had been affected from July 1 onwards, and an event that had occurred sixteen and eighteen days before the four cases developed simultaneously in the only house where the strawberries were eaten. But as all the boys in the house had no doubt eaten them, could one reasonably speculate on anything about strawberries which would

pick out four boys only? Strawberries grow very near the earth, and are usually contaminated with it, as well as the common garden pests and their excreta. If it were conceivable for the virus to be present in such contamination, then accident would no doubt account for its being

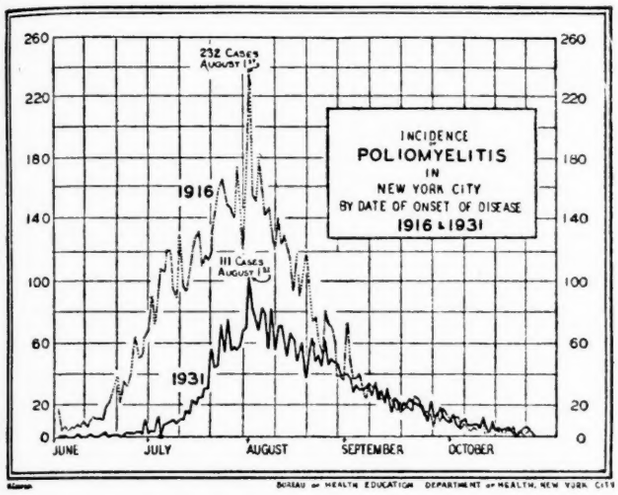

CHART II.—Curves showing the course of the epidemics of 1916 and 1931 in New York. The similarity of the two is remarkable: note that the highest count in each year occurred on the same day, August 1. (Reproduced by courtesy of the New York City Department of Health.)

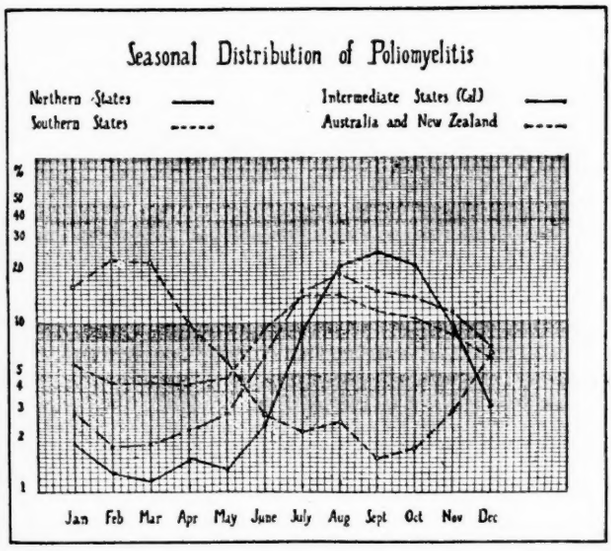

CHART III.—Seasonal distribution of infantile paralysis in different climates. Northern and Southern States, 1912–27; intermediate States, 1913–27; Australia and New Zealand, June, 1924, to August, 1927. (From Aycock, *Journal of Preventive Medicine*, 1929, **3**, 245.)

ingested by a small number only of those eating the fruit. The simultaneous onset certainly resembles a food-poisoning outbreak rather than an epidemic spread by droplet infection.

Resemblance to Food Poisoning

This line of thought, though apparently far-fetched, could not be lightly dismissed when one considers how easily it would explain the majority of the well-known puzzling features in the epidemiology of the disease—namely:

1. The marked seasonal and climatic incidence (see accompanying graphs from the New York Health Bureau) agrees closely with the seasonal increase in the consumption of fresh garden produce and its climatic maximum production.

2. The epidemiological distribution of the disease does not resemble that of respiratory infections; it resembles that of food-poisoning and typhoid.

3. It is definitely *not* highly infectious. Until recently, cases were nursed from the start in general wards of general hospitals, and there have been no well-authenticated cases of infection to contacts. Certain of the cases in this recent outbreak occurred in crowded families, and were not reported until the illness had been in the paralytic stage for several days. During this time other children had been sleeping every night in the same bed as the paralysed child, and in no case was one of these contacts affected later.

4. The virus is said to be recoverable from the faeces of patients, proving that it is present in the alimentary canal.

5. In the classical case recorded by Draper a carrier was definitely postulated from the evidence as being a Greek fruiterer. All the cases were in contact with him as business associates, relations, or customers, and there is nothing in the evidence to point to the infection being carried by the man himself other than by the fruit he supplied.

This possible route of infection has already been discussed by Kling in Sweden on rather different evidence. The present account is given with the object of suggesting to virus workers a line of investigation that might be worth pursuing. It might then be thought worth while to experiment, for example, on passing the virus through some of the many possible contaminants of fresh garden produce—namely, earthworms, slugs, snails, insects, frogs, birds, and domestic animals and their excreta—or at least to determine the period of survival of the virus in fruit and vegetables.

Should anything of value result it would of course point the way to the prevention of the disease, as well as cause a radical alteration in the present attitude towards isolation and quarantine.

Summary

The history of an outbreak of anterior poliomyelitis in a boys' boarding school is recorded, with details of cases.

An account is given of an investigation into the cause of the epidemic.

The simultaneous onset resembled a food-poisoning outbreak, and is discussed from this aspect.

A line of investigation is suggested to virus workers.

Charts II and III are reproduced from Dr. George Draper's *Infantile Paralysis*, published by the D. Appleton-Century Co.

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RAPID PRODUCTION OF AUTOGENOUS VACCINE FOR TREATMENT OF PNEUMONIA

WITH NOTES ON ITS USE

BY

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As the result of an investigation into the type constitution of pneumonia in Kenya during the years 1930 to 1935 a striking preponderance of infections due to the "Group IV" pneumococci over the standard American Types I, II, and III was observed; and this appeared to be the rule in lobar pneumonia among European and Indian residents as well as among African natives. The following table shows the results of typing a series of 776 cases of lobar pneumonia, mainly among natives, the figures including a small proportion of cases of pneumococcal meningitis, in which the commonest causative organism was Type I:

Pneumococcus type ..	I	II	III	Group IV
Type incidence ..	22.0%	5.6%	8.3%	64.1%

Serological analysis of the Kenya Group IV, begun in 1931, produced twenty-one distinct types up to October, 1935, when I was obliged to retire from work. While the majority of the very severe and fatal cases of the series were due to Type I, many were attributable to the Group IV pneumococci, of which the Kenya types designated as Kw.D, Kw.J, Kw.L, Kw.M, Kw.O, and Kw.V were found to be especially important. It is of interest that some of these were identified with types of the American series. But this picture suggested that the most rational means of specific biological treatment of pneumonia, where the causative pneumococci were so largely diverse, should be found in vaccine made from the actual infecting type cultivated from the patient to be treated.

The Case for Vaccine Treatment of Pneumonia

It cannot reasonably be doubted that lobar pneumonia is essentially a localized infection for which vaccine treatment is well suited, provided that, whatever the vaccine chosen, it is used in a sufficiently early stage of the attack—preferably within the first forty-eight hours. In this connexion W. H. Wynn (1934) says: "When the patient is seen within the first three days a vaccine or serum should be given. A vaccine has the great advantage that it is immediately available." The point here in regard to the immediate availability of the vaccine is, of course, that no preliminary typing of the patient's pneumonia is needed as for serum treatment. The vaccine Wynn uses "contains equal numbers of pneumococci, streptococci, and *B. influenzae* (P.S.I. vaccine)." The dose for an adult is "200 millions of each organism—that is, 600 millions in all"—and the object of the vaccine is "to stimulate the production of non-specific antibodies in adequate amount; the specific effect is not seen for some days." The only criticism I offer is the obvious one that the patient's infecting type of organism might not be represented in the vaccine bottle, so that no specific effect might follow at all. Reliance is therefore evidently placed mainly on the non-specific stimulus of the vaccine employed. If the vaccine used is an autogenous one, the specific effect can be looked for with certainty, and may play an extremely valuable part.

It has been urged against the principle of vaccine treatment of pneumonia that, since antibodies are already present, injection of vaccine is likely to induce a dangerous "negative phase." Here it is presumed, apparently, that antibodies are already present in adequate amount, though such could hardly be the case in a severe illness. And when the clinical signs indicate that the antibody concentration is below that needed for victory over the infecting antigen, the question to be answered is if it is legitimate to risk by vaccine injection this postulated "negative phase" with a mind to its being followed speedily by an abnormal rise in the antibody concentration and a consequent improvement in the condition of a patient who otherwise is likely to die—or, at least, to undergo a very distressing illness which might be cut short by the vaccine. As a result of my experience in vaccine therapy I regard the "negative phase" as a bogy from the pedantry of which a modern pathological outlook seems largely to have freed itself: in every case treated by means of specific or autogenous vaccine I look for an immediate "non-specific" effect in stimulation of antibodies, and doubtless my experience in this matter is shared by others.

With regard to the use of chemical substances in treatment of pneumonia, the following quotations from a letter by Alexander Fleming (1938) are apposite. In reference to the results of his experiments with "T 693" he writes, "I have come to the conclusion that chemotherapy and immunotherapy in pneumococcal infections are not competitive but complementary." He says, also, that "the more immune the patient is the better will be the killing of the pneumococci, and the ultimate result will depend on whether the patient has sufficient resistance to deal with the pneumococci even after they have been in contact with the drug." Further, he continues, "Pneumonia is a serious disease, and should be treated by all methods which have the effect of increasing the immunity of the patient or which are detrimental to the pneumococcus." And to quote from this valuable communication again, the writer says: "We must not forget that it is possible to immunize patients actively by means of vaccines. It has been shown that in animals which have received pneumococcal vaccine protective antibodies can be demonstrated within three days, and the same thing has been demonstrated in patients suffering from pneumonia." The foregoing is a useful corrective to that sceptical attitude which is met with too often in regard to vaccine treatment of pneumonia—an arbitrary scepticism not founded on any special knowledge and experience. There is no doubt that in Kenya many people die of pneumonia whose lives might have been saved by vaccine, and doubtless this is true elsewhere.

Preparation of "M.P.W." Autogenous Pneumococcal Vaccine

The obvious disadvantage of an autogenous vaccine for pneumonia, where vaccine injections must be begun in the earliest possible stage of the illness, is the length of time taken to prepare it by even the most rapid and certain ordinary methods. The procedure below described for the preparation of autogenous pneumococcus vaccine, designated as "M.P.W." vaccine, which consists of the rather obvious expedient of washing out the peritoneal cavity of a sputum-inoculated mouse and using the heavy pure suspension of pneumococci thus obtained as vaccine, enables injections of it to be made on the morning following the day or evening on which the first specimen of the patient's sputum is collected, thus securing a very impor-

tant saving of time. It only rarely happens that a satisfactory specimen of sputum cannot be obtained in the first two days of a pneumonia attack. It may be objected that a mouse inoculated intraperitoneally with an emulsion of genuine pneumonia sputum may produce cultures of casual pneumococci that have come to adhere to the sputum during its rapid transit of the upper respiratory passages and throat. This objection is scarcely valid or warrantable by experience: the infecting type of pneumococcus being extremely abundant in the sputum and of maximum virulence for mice, the chance that a mouse would, so to speak, ignore these in favour of a few adventitious pneumococci must be negligible.

TECHNIQUE OF PREPARATION

The procedure adopted for making M.P.W. vaccine is as follows:

1. Inoculate a large mouse, or preferably two mice in case of accident, intraperitoneally with 0.5 c.cm. of a rather thick saline emulsion of a satisfactory specimen of pneumonia sputum. The specimen should have been collected direct into a sterile tube from the patient's mouth. There is no need for preliminary washing of the specimen.

2. The mouse should be chloroformed when moribund rather than be allowed to die. It is then pinned out on a board that immediately before has been dipped in a strong solution of disinfectant, and the whole of its anterior surface painted liberally with iodine. The skin is deflected, and the exposed surface of the abdominal wall painted with iodine again before opening the peritoneal cavity. Before each stage of the dissection the scissors and forceps are dipped in spirit, which is flamed off.

3. A smear is made of the peritoneal exudate and Gram-stained to verify pneumococcus culture of normal abundance. With a sterile wool-plugged pipette and teat the peritoneal cavity is then first washed into about 1 c.cm. of plain saline, giving a dense suspension which may be used if desired for bile-solubility tests or agglutination tests with standard type sera. But this preliminary wash may be dispensed with.

4. The main peritoneal wash for the vaccine is then made into about 4 c.cm. of 0.5 per cent. phenol saline in a sterile wool-plugged centrifuge tube. This is suitably closed or covered (I use a cut-off segment of a rubber stopper, sterilized by flaming) and spun at about 6,000 revolutions for thirty seconds to throw down cells and flocculi.

5. The supernatant pneumococcus suspension is pipetted off into a wool-plugged tube, which is then covered with a rubber cap and immersed up to the cap in a water bath at 60° C. for thirty minutes.

6. The killed suspension is then introduced into a small vaccine bottle, labelled with the dose to be given. This is 1,000 millions of cocci, generally contained in an injection volume of 0.5 c.cm. The vaccine is administered to the patient immediately after bottling: the usual tests of its sterility may be safely dispensed with.

A full-grown mouse generally yields 4 to 5 c.cm. of suspension of a density of 1,000 to 3,000 millions per c.cm., corresponding to opacity representing from 0.3 to 0.6 mg. Burroughs Wellcome's opacity tube scale was used for estimating the strength of these vaccine suspensions; to obtain the value in millions the mean was taken of the two correlations with Wright's and the haemocytometer methods of estimation. The dose in cubic centimetres of the vaccine is, of course, adjusted according to the strength of the suspension obtained from the mouse peritoneal wash. A too heavy suspension should be diluted with carbol saline so that between 1,000 millions and 1,500 millions of cocci may be contained in a convenient volume for injection of about 0.3 to 0.5 c.cm. It is preferable that the vaccine should be considerably over the strength of 1,000 millions; the extremely low toxicity of killed pneumococcus suspension should be borne in mind.

Dosage of M.P.W. Vaccine, and Therapeutic Trials

This type of vaccine was first produced and experimented with by me seven years ago, with the clinical collaboration of Dr. P. C. C. Garnham (1931) of the East African Medical Service, in a series of cases of pneumonia exclusively among natives. Two factors here militated against success: one was that natives with pneumonia seldom come to hospital until their illness is in an unfavourably late stage for vaccine treatment; the other was that the dosage then employed—only 100 millions of pneumococci—was far too low to be likely to be effective with patients in such circumstances. The only apparent effect of the vaccine in these first trials was a slight reduction of the average duration of the febrile period from about eleven days to about nine days (pneumonia in Kenya is apt to be remarkable for the long period between onset and crisis).

It became evident that the best opportunities for testing the vaccine method would be afforded by European patients, who were more commonly under medical care in the earlier phases of their pneumonia. Accordingly in 1933 further trials were made with this vaccine in heavier dosage, in the first instance with a European severely ill with lobar pneumonia, the sputum yielding the Kenya Group IV type Kw.D (Type VIII of the American series), from which M.P.W. vaccine was produced containing 400 millions per c.cm. Encouraged by the obvious success of the vaccine in inducing an early crisis in this case and by the absence of toxic reaction to the injections, trials were made with higher dosage on native cases of pneumonia, more with a view to acquiring further experience of tolerance than in the hope of good therapeutic results with patients who, as has been said, come for admission to hospital in unfavourably late stages of the attack. Doses up to 3,000 millions were thus tested. No definite evidence of toxic reactions to such dosage appeared. Therapeutically the results were variable: sometimes the desired effect of a pronounced fall of temperature or early crisis on the day following injection was secured, but more often results were indefinite—this generally with patients whose treatment had to be begun too late. To test the vaccine with early cases among Europeans it was necessary to win by slow degrees the confidence and interest of the local practitioners in this method of treating pneumonia. Consequently, the number of European cases treated early in the disease with properly high dosage of M.P.W. vaccine had only reached the very inadequate total of eight before I was obliged to discontinue work finally in 1935. Brief details of these cases and one native case are given below, partly for their interest, but largely in the hope that some of the many pathologists whose laboratories are attached to a general hospital may be induced to give the method a searching test in the medical wards.

Illustrative Cases

Case 1.—A middle-aged male European, two days ill with lobar pneumonia. Cardiac and respiratory embarrassment was very marked. M.P.W. vaccine was given at midday. Six hours later there was a very slight rise in the temperature, and the patient said he felt as though a cold in the head were coming on. The next day he was more comfortable, and had greatly improved in the evening. The following morning the temperature had fallen by crisis, and the patient said he felt well. A second injection was given three days after the first, and a third injection after another three days. Convalescence was rapid and uneventful from the day of the crisis. The nursing sister in charge said she had never seen a severe case of pneumonia get well so quickly. The infecting organism

was the Kenya Group IV type Kw.D. (Type VIII of the American series).

Case 2.—An elderly male European with lobar pneumonia; severe Type II infection. M.P.W. vaccine was given on the third day of illness. The temperature was 101.5° the same evening but dropped to 97.5° at 6 o'clock the next morning, the patient feeling better and being less cyanosed; the temperature rose to 99.6° the same evening. Vaccine was given again the following day, when the temperature was subnormal. Convalescence was regular from that date. The doctor in charge of the patient wrote, "One of the most successful cases of lobar pneumonia I ever had."

Case 3.—A female European with lobar pneumonia; severe Type III infection. M.P.W. vaccine was given late in the illness. The only notes available are the doctor's report that it was a good case and the patient made a quick recovery, the crisis occurring forty hours after the vaccine injection.

Case 4.—A female European with lobar pneumonia; extremely severe Type I infection. M.P.W. vaccine was given—2,000 millions. The patient was said by the doctor in charge to be moribund when the first injection of vaccine was made, and he regarded this as the last hope. The next morning her condition was reported satisfactory. A second injection was given forty-eight hours after the first, and the crisis occurred within the next twenty-four hours. The doctor said that the vaccine "worked a miracle for the patient."

Case 5.—A male African with lobar pneumonia; severe infecting pneumococcus type "Kw.S." The mouse peritoneal exudate from which the vaccine was made included also a strain of Friedländer's bacillus, in numbers exceeded by the pneumococci, so that the vaccine necessarily contained both types of organism. M.P.W. vaccine was given; there was no toxic reaction. Crisis occurred the following day and convalescence was easy. This native case is included here because it was the only one in which a mixed vaccine was used, and it is typical of the few satisfactory native cases that were collected.

Case 6.—An elderly male European who had lobar pneumonia, Type I infection, which proved fatal. He was given 0.08 mg. of M.P.W. vaccine. The only report received on this case was that the vaccine had "no effects."

Case 7.—An elderly male European suffering from a second attack of pneumonia, Type I infection, which ended fatally. M.P.W. vaccine was injected on the fourth day of the illness, the doctor first seeing him on the third day. His temperature dropped to normal about thirty-six hours after injection and the pulse to 106, and he appeared much less toxic. The temperature rose again, however, after a few hours, and he died four days later. Only one dose of the vaccine was given; if it had been repeated the illness might perhaps have run a different course. The vaccine was reported to have had no apparent effect in increasing the toxaemia, but to have been followed by a temporary improvement in the patient's general condition.

Case 8.—A European woman with very severe lobar pneumonia, Type I infection, ending in death. M.P.W. vaccine, 3,000 millions, was given. The temperature fell to 99° the day following injection, but rose again, and the patient died about eighty-four hours later. Only one dose of the vaccine was given by the doctor, but it seemed that this effected a temporary improvement, and should have been repeated.

Case 9.—A male European aged 46, with lobar pneumonia which was extremely severe and involved both lungs. The infecting pneumococcus was a type of Group IV, unclassified. M.P.W. vaccine, 1,000 millions, was first injected about forty-eight hours after onset. During the next two days the patient appeared to be moribund; the Arneth count showed a marked shift to the left, the second lung became involved, and the doctor in charge was nervous of giving another injection of the vaccine. He was encouraged, however, to try a second dose of 1,000 millions seventy-two hours after the first. The next day there was general improvement in the patient's condition, speedily followed by the crisis, and he made a good recovery.

Scheme of Dosage

It is recommended that the injection be repeated on the following day if the first dose of vaccine has not lowered the temperature by that time; in cases where a good effect had resulted within about thirty hours after the first injection the vaccine might be repeated after forty-eight hours, and subsequently, if thought advisable, at intervals increasing from forty-eight hours to seventy-two, ninety-six, and one hundred and twenty hours. The vaccine should be repeated even when the patient's condition is worse on the day following the first dose: there need be no fear of increasing the toxaemia. It is noteworthy that in the handbook of the South African Institute for Medical Research the dose of 8,000 millions of Lister's prophylactic group pneumococcal vaccine is advised for treatment of pneumonia; and experiments in treatment with the same dose of a similar prophylactic vaccine issued in 1934 showed that the 8,000 millions were well tolerated by pneumonia patients.

Summary

An account is given of the types of pneumococcus found in lobar pneumonia cases in Kenya.

A case is stated for vaccine treatment of pneumonia.

A method for the rapid production of autogenous pneumococcus vaccine ("M.P.W.") is presented.

Details of nine cases of pneumonia treated with M.P.W. vaccine are appended.

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2-SULPHANILYL-AMINOPYRIDINE (M & B 693) IN TREATMENT OF GONORRHOEA

BY

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Of the 102 cases of gonococcal infection included in this preliminary report, seventy-nine were in men, nineteen in women, and four in young girls. No adjuvant treatment—for example, irrigations—that might be of material assistance was given during the use of the drug under consideration—M & B 693. The results indicate a high proportion of apparent cures (over 91 per cent.).

Toxic effects were encountered in 29 per cent., and their nature and incidence are given later in tabular form. The commonest manifestations of intolerance were nausea and headache, and in most cases these symptoms were slight and the patients were able to continue with the drug in reduced dosage. The discontinuance of the drug was quickly followed by the subsidence of all the undesirable symptoms, and no prolonged ill effects were observed.

In the successful male cases clinical cure was attained in under a week. In the successful female cases signs which might be interpreted as denoting infection persisted for two weeks, but gonococci disappeared from the smears almost as quickly as in the male cases (under three days). Thus in the early cases the gonococcal infection was cured before the time when the disabling complications—for example, epididymitis or salpingitis—are to be expected. Also, cure was effected without the time-consuming and often badly applied local irrigation treatment which was such a prominent feature of the old therapeutic regime. In the future the nightmare of stricture of the urethra, with its ever-present threat of retention or extravasation of urine, should cease to disturb the slumbers of those males whose weakness is sexual indiscretion, and the depressing picture of the chronic pelvic invalid should be less often encountered among the habitués of spas and health resorts.

Above all, the possibility of spread of the disease should be greatly reduced through the shortening of the period of infectivity. There is therefore every likelihood of a progressive diminution in the incidence of gonorrhoea, and designers of venereal disease clinics will plan on less spacious lines, especially in the accommodation required for irrigation treatment.

Standard of Cure

The standard of cure aimed at, but at the time of assessment not achieved in all the cases quoted, was as follows:

All cases are observed for a minimum of three and a half months to exclude the possibility of superadded syphilis.

Male cases are under observation for at least a month after the cessation of all treatment, and during this time, in addition to the absence of discharge and the maintenance of clear urine, repeated smears of the urethral, prostatic, and seminal vesicular secretions must be free from pathogenic organisms and relatively free from pus cells. These smears must also remain pus-free and organism-free forty-eight hours after a provocative intramuscular injection of 300 to 500 million organisms in a polyvalent gonococcal vaccine. The gonococcal complement-fixation test of the blood must be observed to remain negative or become negative during the period of observation. Instrumental investigation, including urethroscopy, must show a return of the urethral lining to normal.

Female cases are observed for three months after cessation of treatment, and during this time, in addition to the absence of discharge, repeated smears of the urethral, Bartholinian, and cervical canal secretions must be free from pathogenic organisms, especially immediately after the menstrual periods, and also forty-eight hours after the injection of 300 millions of the provocative polyvalent gonococcal vaccine. The gonococcal complement-fixation test of the blood must remain negative or must become negative, and careful bimanual examination must exclude any residua in the uterus or tubes.

Cases claimed as "apparent cures" include some who have not been observed for the minimum periods stated above. In all cases smears were examined very frequently, often daily at first, and the presence of any discharge or other sign of inflammation and the condition of the urine were noted.

Male Adult Cases

ACUTE ANTERIOR URETHRITIS (49 CASES)

The average daily dose was 3 grammes maintained for an average of about five days, and this was followed in some cases by a reduced dose for a maximum of seven to nine days.

There was apparent cure in forty-three cases, and apparent or possible failure in six cases. In the apparent cures, clinical signs disappeared in under four days (average), and gonococci were absent in smears after two days (average). In the apparent failures, in three cases gonococci were present in smears after the course of drug treatment; of these one received 16 grammes in four days; in the second case treatment was very irregular, 12 grammes being taken in eight days as follows—3, 0, 0, 3, 3, 0, 0, 3. The third case relapsed, and gonococci reappeared in the smears one week after the first course of 15 grammes, but the discharge and the gonococci disappeared quickly on beginning a second course. Two other cases had a return of discharge after 16 grammes in five days, but no gonococci were found in smears; in another case a slight mucoid discharge showing no gonococci in smears persisted after six days of drug treatment.

SUBACUTE GONORRHOEA (ANTERIOR URETHRITIS): 5 CASES

In all these five cases clinical cure was attained in an average of just over four days. A peri-urethral abscess and a sinus discharging gonococcal pus cleared up within a week.

ACUTE, SUBACUTE, AND CHRONIC ANTERIOR AND POSTERIOR URETHRITIS (25 CASES)

In twenty-one of the cases there were complications such as prostatitis, seminal vesiculitis, epididymitis, arthritis, and iritis. In all these cases the urethral discharge cleared up in just over five days and all the complications improved rapidly, including the cases of prostatitis (one with sciatica), arthritis, and even the iritis.

PREVIOUS TREATMENT WITH DRUGS OF THE SULPHANILAMIDE CLASS

Three of the male cases had relapsed after treatment with uleron, one having received two courses each of 20 grammes; the other two had received 16 grammes and 13½ grammes respectively. In the last of these three cases irrigation had also failed, and was stopped when M & B 693 was started. Two of the three cases which had previously received uleron showed toxic symptoms with M & B 693.

Fifteen cases had been treated with sulphanilamide: of these cases thirteen which showed gonococci in smears were clinically cured in five days; one case relapsed after M & B 693, and gonococci reappeared in smears. Two cases developed jaundice after sulphanilamide therapy followed by M & B 693—one twenty-five days, the other twenty-seven days, after receiving the "693."

Two cases had no toxic manifestations with M & B 693 after having had such symptoms as headache, dizziness, and skin eruption while on sulphanilamide, but the dosage of the latter drug was twice that of the "693."

Female Adult Cases

NORMAL DOSAGE (19 CASES)

In seventeen cases the average dose was 2 grammes daily for just over six days, and the other two each received 3 grammes daily for five days. No local treatment was applied other than sitz baths and powdering of the vulva.

Therapeutic Effect.—In sixteen cases gonococci were absent from smears in under three days. Clinical signs such as discharges persisted on the average up to fourteen days. There was only one case of relapse with reappearance of gonococci in the smears, and two cases defaulted.

INTENSIVE DOSAGE

After the initial dose of ½ gramme four-hourly, four cases received four-hourly doses of 2 grammes, 2 grammes, 1 gramme continued, and finally tapering off to ½ gramme in a manner similar to the procedure recommended for cases of pneumonia, the total duration of treatment averaging eight and a half days. In these cases the gonococcus was not found in smears after an average of two days. No relapses were noted during the period of observation. All the cases on intensive dosage developed severe nausea, violent vomiting, and prostration on the first day, although they had tolerated the initial dose of half a gramme.

Toxic Effects on Normal Dosage

Toxic effects were observed in twenty of the seventy-nine male adult cases and in seven of the nineteen adult females. The symptoms, although slight in the majority, were severe enough to necessitate withdrawal of M & B 693 in eight cases (three men and five women), but not before the drug had been given for an average of six days, a sufficient period for it to exert the usual favourable influence on the gonorrhoea. The skin rashes were blotchy, erythematous or papular, and morbilliform in type, affecting the hands, arms (forearms especially), legs (thighs especially), abdomen, and back. The face was not involved in the most severe eruption seen. There were no cases of photosensitivity in which the eruption is confined to the exposed parts—face, neck, hands, and forearms—although this type of rash has been found in cases treated with sulphanilamide.

The nature and incidence of the toxic symptoms in patients on normal dosage are shown in Table I, some patients exhibiting more than one symptom. All the toxic effects subsided quickly on withdrawal of the drug. One woman felt sick with six tablets (3 grammes) daily, but tolerated four tablets a day. One woman had sickness and lassitude with more than three tablets daily for four days, but nevertheless showed a very good clinical response.

TABLE I.—*Showing the Nature and Incidence of Toxic Symptoms in Patients on Normal Dosage*

Nature of the Toxic Effect	Incidence in Men	Incidence in Women
Headache	8	2
Nausea	6	2
Dizziness	3	—
Skin eruption	2	4
Lassitude	2	2
Cyanosis	2	—
Vomiting	1	1
Breathlessness	1	—
Diarrhoea	1	—
Emptiness and hunger	1	—

Children with Gonococcal Vulvovaginitis (4 Cases)

These cases received no adjuvant treatment other than sitz baths and powdering of the vulva, with one exception in which menformon was given by injection and orally for two days before the drug treatment was started. As they are of special interest a synopsis of their clinical history is given in Table II.

Management of a Case

There is no necessity to wait for immunity to develop; M and B 693 should be used as soon as the diagnosis is made. The technique suggested by our experience is as follows:

Men should receive six ½-gramme tablets a day for five days—two tablets thrice daily after food, or, alternatively, two after breakfast, one after lunch, one after tea, and two after dinner or supper. After five days the dose should be reduced to three tablets, or at most four tablets, a day, continued for another five to nine days. The majority are cured by the first five days' treatment.

Women should receive four ½-gramme tablets daily for five days—one tablet after each of the principal meals, or as follows: one tablet after breakfast, half a tablet at noon, half a tablet at 3 p.m., half a tablet at 6 p.m., and one and a half tablets at bedtime. After the first five days the dose should be reduced to three tablets a day, and be maintained at this level for another five days.

Girls with vulvovaginitis should receive, for the first five days, half a tablet from four to six times daily, according to age, and thereafter, for the next five days, half a tablet thrice daily.

TABLE II.—*Clinical History of 4 Cases of Gonococcal Vulvovaginitis in Children*

Case No. and Age	Nature of Infection	Number of Days' Treatment till Disappearance of Clinical Signs	Dosage	Relapses	Toxic Effects	Remarks
2747 Aged 5	Recent acute vulvovaginitis—gonococci present in smears from urethra and vagina	2	0.25 gm. thrice daily for 5 days	None. Observed for 78 days after first negative smears	None	One injection menformon (25,000 units) and menformon tablets for 2 days before M & B 693 started, but smears still contained gonococci
2779 Aged 5	Recent acute vulvovaginitis; gonococci present in smears from urethra and vagina	3	1 gm. daily for 5 days (¼ tablet every 6 hours)	None. Observed for 30 days after first negative smears	Neutrophil polymorphs reduced from 64% to 41%	At start of treatment white blood corpuscles 15,000 (neutrophil polymorphs 64%). After 5 days' treatment white blood corpuscles 11,000 (neutrophil polymorphs 41%)
2780 Aged 9	Recent acute vulvovaginitis; gonococci present in smears from vagina and urethra	4	*1st Course:* 1¼ gm. daily for 5 days (¼ tablet every 4 hours) *2nd Course:* 1¼ gm. daily for 5 days	On 10th day after starting treatment gonococci in smears, but no clinical signs. No relapse in 15 days after second course	Nausea, vomiting. Dose reduced to 1¼ gm. daily	After 5 days white blood corpuscles 6,800 (neutrophil polymorphs 55%)
A4602 Aged 10	Recent acute and severe vulvovaginitis; gonococci present in smears	5	*1st Course:* 4 gm. daily for 2 days; 2 gm. daily for 2 days; 1 gm. daily for 4 days—given in divided doses 4-hourly. Total 16 gm. *2nd Course:* 2½ gm. for 2 days; 1¼ gm. for 4 days. Total 10 gm.	On 15th day after starting treatment gonococci reappeared in smears. No relapse 6 weeks after completion of the second course	Nausea on the 2nd day, but was able to continue on the reduced dose	Gonococci absent after 4th day of first course and after 1st day of second course

The tablets are best taken powdered and in half a tumblerful or more of water. During the drug treatment patients should be warned not to take sulphur-containing foods such as eggs and onions, and, if laxatives are necessary, to use only liquid paraffin or extract of cascara, avoiding especially Epsom salts or liquorice powder.

Conclusions

1. M & B 693 can effect clinical cure within a week in a large majority of cases of gonococcal infection, whether of short or long duration and whether occurring in men or in women.
2. Complications originally present, such as epididymitis, arthritis, or iritis, improve rapidly.
3. In the cases quoted there was complete absence of complications or spread of the disease after the start of the drug therapy.
4. No irrigation or other adjuvant treatments are necessary.
5. Toxic effects may occur in less than one-third of the cases, but where normal dosage is employed these are usually mild, requiring only a reduction of the dose.
6. Toxic symptoms are quickly recovered from, and no lasting ill effects have been encountered.
7. Vulvovaginitis also responds well to M & B 693.
8. Our experience has led us to conclude that M & B 693 is the most potent anti-gonococcal agent available at present.

Summary

A report is given of 102 cases of gonococcal infection treated with M & B 693.

The standard of cure aimed at is discussed, along with the general results of treatment.

The clinical history of four cases of vulvovaginitis in children is detailed.

Points on the management of a case are given.

We are indebted to Messrs. May and Baker for supplies of the drug and to Dr. Robert Forgan for advice and literature.

INTERNATIONAL HOSPITAL ASSOCIATION

Toronto, September, 1939

At a recent meeting of the United Kingdom Council of the International Hospital Association, presided over by Mr. W. McAdam Eccles, M.S., F.R.C.S., chairman, there was received a preliminary but very detailed programme of the sixth Biennial Congress of the I.H.A. to be held at Toronto in September, 1939.

The task of the production of this programme has been in the capable hands of Dr. Malcolm T. MacEachern, President of the I.H.A., and Associate Director of the American College of Surgeons, with the assistance of Dr. Harvey Agnew, Secretary of the Canadian Hospital Council and President-elect of the American Hospital Association. Associated with them have been Dr. William S. Coldwell, chairman of the Congress Committee and assistant medical director of the Canadian Red Cross, and the secretary, Mr. Carl T. Flath. By all concerned with the I.H.A. in Great Britain, in the British Empire, and on the Continent, and above all in Canada and the United States, it is believed that this coming congress will be unique in the annals of international hospital affairs, and will stand to show the co-operation of the whole civilized world in the prevention of and the dealing with disease in the modern manner. Forty study committees will be reporting upon their individual work during the preceding two years, and papers of great interest will be read by many experts during the week of the Congress, September 19 to 23.

All particulars concerning the subjects to be discussed and of the travel arrangements to Toronto and back can be obtained from the joint hon. secretaries of the I.H.A., 17, Bloomsbury Square, London, W.C.1.

Clinical Memoranda

Primary Intussusception of the Appendix

Primary intussusception or inversion of the appendix, without complication, is probably a sufficiently rare curiosity to merit report of a case which came under my care while acting surgeon at Offaly (King's) County Hospital, Tullamore.

CASE REPORT

The patient, a young man aged 20, was admitted to hospital after a severe attack of colicky abdominal pains accompanied by vomiting; the symptoms had been present in lesser degree at intervals over the two preceding days. On admission his temperature was 99° F. and the pulse rate 80. Slight tenderness was elicited on deep palpation of the right iliac fossa. Rigidity was not in evidence, nor was any mass felt.

On the following morning the abdomen was opened through a McBurney incision, but the caecum was not delivered with the ease anticipated, nor was the appendix felt. On enlarging the incision and delivering the caecum the three taeniae coli were seen to converge on a tiny dimple into which ran a taut band—the meso-appendix. The appendix was felt as a

FIG. 1.

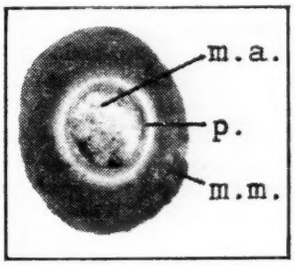

FIG. 2.

FIG. 1.—The specimen (scale, inches).

FIG. 2.—Cross-section of the specimen (actual size). m.a. = meso-appendix; p. = peritoneum; m.m. = mucous membrane.

sausage-shaped mass fixed at the caput caeci, lying within the caecal cavity. Its size indicated engorgement, and an effort to evert it was quite futile. The meso-appendix was ligated and severed and an intestinal clamp lightly placed across the caput caeci, within which lay the appendix. After packing off, the caecal wall was opened by an incision which ended at the site of inversion, the appendix was delivered, and the incision carried round its base. With the usual toilet, closure of the caecum in two layers, and adequate drainage, the operation was concluded in the ordinary way.

Convalescence was uneventful, and the patient was discharged from hospital after eighteen days by the surgeon, Dr. T. Meagher, who had then resumed duties.

I am indebted to Dr. W. R. O'Farrell, pathologist to the Mater Misericordiae Hospital, for the following report on the specimen: "The specimen is a complete inversion of the vermiform appendix. Section shows a central mass of fatty tissue containing large vessels—the meso-appendix; external to this is the muscular coat and the mucous membrane, which shows in places the subepithelial collections of lymphocytes. The whole mass is congested and inflamed. The inversion is complete, and includes the tip of the appendix."

The usual explanation of the condition—an attempt to extrude a concretion or an enlarged lymphatic follicle—probably holds in this case.

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Reviews

RETROSPECT AND PROSPECT

Thus We are Men. By Sir Walter Langdon-Brown, M.A., M.D., Hon. LL.D., Hon. D.Sc., F.R.C.P. (Pp. 344; 10s. 6d. net.) London: Kegan Paul, Trench, Trubner and Co. 1938.

Since his retirement from the professorship of physic in his old University Sir Walter Langdon-Brown has spent part of his leisure in revising and collating the addresses he gave to learned societies on subjects covering the borderline of medicine, psychology, and religion. Deeply impressed in his student days by the facts of organic evolution, he is led to apply the same rule to the social development of the individual and of the community. He points out that that cycle of time with his own birth as centre includes such remarkable scientific developments as the statement of evolution and Mendelian heredity, the discovery of the bacterial causes of infections, a new aspect of psychology with ability to understand and determine the influence of early training and environment on the reactions to the trials and work of later life, and the control exercised by the ductless glands through the effects of their products and secretions on the somatic and psychological development.

Through these collected essays runs the thread of the course of social evolution of man as apart from the rest of the animal kingdom—that is, the mental or psychological evolution—though psychology is approached from the physiological side. But the author's point of view is not that of the anthropologist but of the physician; for his interest is not so much in the laboratory as in the essential bedside approach to medicine. Thus after a short discussion of primitive social psychology and the modern conception of how the mind works, he brings forward instances of the lack of adjustment to society, to occupation, and to sex; without this the individual cannot become psychologically adult. Only if he can make suitable adaptations to these three social factors can a man be happy and fit. He may succeed in overcoming his difficulties; if not, neurosis, disease, or degeneracy ensues. A second group of essays, more literary in subject-matter and dealing with instances of maladjustment, illustrates escape from the realities of life and unpleasant duties through fantasy or fugue, and failure to adapt to the problems of sexual maturity; instances are given of double personality among the great, and lesser, authors and playwrights. In an interesting and acute piece of criticism Sir Walter Langdon-Brown shows how authors reveal in their characters or the situations that arise in their novels and plays their own inherent psychological imbalance. It is an easy step to contrast and admire the members of the medical profession who have made their mark in literary circles: Sir Thomas Browne, Harvey with his profoundly significant demonstration of the circulation of the blood, the little-known heroes of plague-stricken villages in mediaeval England, and those outstanding examples of humanistic doctors of modern times, Sir William Osler and Robert Bridges. The author's literary inheritance and wide reading have helped him to dip his own pen in the golden ink.

In his third group of essays Sir Walter Langdon-Brown approaches the borderline of philosophy and religion. Man as he emerged as a thinking animal has been beset by fears. His desire for assurance of his own survival, of his continued sustenance, and of his freedom from disease has been met in the past by the idea of a god whose special care has been the giving of this assurance; sometimes the apotheosis of a fellow man whose tenure of the office was terminable by the selection or personal prowess of a successor. The first biological stage of a community is held together by taboo and fertility rites. In the second individualities develop, and the religious trend is towards longing for assurance of individual salvation and personal immortality. In the stage of evolution that the human race has now reached there is need for conscious co-operation. Again the god is the expression of the soul's sincere desire, and the worship of the State has emerged. As the individual must attain his manhood balance by fusing his ancestors, the community exists by a working compromise of often antagonistic elements. But there is no static position; evolution demands a flow, though always offering a higher or a lower course. The solution can be found by a method which gives adequate freedom to the individual life within a larger co-ordinated unit. Can we achieve it? Sir Walter Langdon-Brown has more optimism than Sir Thomas Browne, who three centuries ago wrote, "Thus we are men and we know not how."

HEART DISEASE IN PREGNANCY

Heart Disease and Pregnancy. By Crighton Bramwell, M.A., M.D., F.R.C.P., and Edith A. Longson, M.B., Ch.B., D.P.H. With a Foreword by Sir Ewen Maclean, M.D., LL.D., D.Sc., F.R.C.P. (Pp. 194; 57 figures, 39 tables. 8s. 6d. net.) London: Humphrey Milford, Oxford University Press. 1938.

The Heart in Pregnancy. By Julius Jensen, Ph.D., M.R.C.S., L.R.C.P. (Pp. 371; 5 figures, 117 tables. 25s. net.) London: Henry Kimpton. 1938.

The fact that our knowledge of heart disease in pregnancy (which for practical purposes can be considered as rheumatic) has not kept pace with other aspects of cardiology must be attributed to the relatively poor opportunity available for expert and prolonged observation of the condition. A large number of data have now been collected, as shown in the two volumes reviewed herewith, but the manner of presentation suggests that final conclusions cannot yet be drawn from them. The book by Drs. Bramwell and Longson is an admirable and concise statement of their experience based on 350 cases. The first step is to decide on the presence or absence of heart disease in the pregnant woman who has certain symptoms, and this may not be easy, since the effects of pregnancy in the normal woman may produce both symptoms and signs which simulate very closely those of heart disease—for example, shortness of breath, palpitation, fullness of the veins of the neck, rales at the lung bases, and a change in the radiographic silhouette of the heart similar to that of mitral stenosis. Such problems are clearly discussed, and the common physical signs fully described. Auricular fibrillation, which is a serious complication not only because it may itself be a severe handicap but also because it occurs in the advanced stages of rheumatic heart disease, is discussed at length; the mortality in the cases with this arrhythmia was found to be four times that of the whole series. In the final chapters on treatment and prognosis the point is stressed that in pregnancy of more than three months' duration artificial termination is nearly always inadvisable, and that when there is heart failure any interference must always be preceded by adequate medical treatment, while the rules given for prognosis should help to lessen maternal mortality. For information on any of the problems connected with heart disease and pregnancy no better source than this well produced and illustrated book is available.

The Heart in Pregnancy, by Professor Jensen, is a more discursive but less practical work. It is largely a painstaking review of the literature, much of which is contradictory, and suffers from the fact that it is only to a small extent a record of personal observations. As a result the reader is apt to be confused, and has to look carefully for definite guiding principles. For those seeking an account of the literature on the subject the book provides a comprehensive summary, but it will be of less value to the practitioner requiring quick access to principles of treatment.

PRACTICAL MEDICINE

Minor Medical Operations for Senior Medical Students and Recently Qualified Practitioners. By Kenneth Harris, M.A., M.D., F.R.C.P., and Edith Harris, M.B., B.S., D.P.H. (Pp. 198; 41 figures. 7s. 6d. net.) London: H. K. Lewis and Co. 1938.

Drs. Kenneth and Edith Harris have written a short and easily readable book on minor medical operations principally designed for senior medical students and recently qualified practitioners. It is probably more difficult to describe practical procedures than to write a straightforward short textbook of medicine, and the joint authors of the present book have not altogether brought it off. For example, the sections on blood transfusion do not contain all those details which show that the authors are frequently carrying out the procedure and appreciate all the difficulties. (Incidentally the "drip" method of giving blood is not described.) Exploration of the chest is better managed (probably because of the connexion of Dr. Kenneth Harris with the Royal Chest Hospital), but it is unfortunate that in the section on artificial respiration Schafer's method is not put first, as most experts are agreed on its superiority. Again, in view of a recent accident it would have been wiser to recommend removing the lid of the tin of cataplasma kaolin before heating it in boiling water, and the authors do not appear to be aware of the "tip" of spreading vaseline over the area to be poulticed, especially when it is hairy (much more effective than the gauze recommended). These criticisms suggest that the authors have not given quite enough thought to the relative ignorance of the audience whom they are addressing.

A careful revision, and in many places considerable extension, would turn this handy volume into a really valuable guide-book to medical and nursing procedures. Incidentally the title suggests the obvious query as to what the authors consider a *major* medical operation.

DISEASES MASQUERADING AS TUBERCULOSIS

Pseudo-Tuberculosis in Man. By Professor I. Snapper. Lectures given in November, 1937, at the University of London. (Pp. 90; illustrated; 12 plates. Fl. 7.50.) Haarlem: De Erven F. Bohn N.V. 1938.

Most diseases whose aetiology is unknown have been fated to have a tuberculous origin attributed to them, even when this has necessitated crediting the tubercle virus with phases of development or effects as yet unproved. For many years several affections showing nodules with a histological structure somewhat similar to that found in genuine "tubercles" have been regarded as tuberculous, though no tubercle bacilli could be demonstrated in them. Such lesions, especially when localized in the skin, have generally been termed tuberculides. This applies to lupus pernio, first described by Besnier in 1889, and to the multiple benign sarcoids reported by Boeck in 1899. Later it was shown that both these conditions were often accompanied by visceral localizations, Schaumann in 1914 being the first to bring forward the conception that Boeck's sarcoids (or benign miliary lupoid) must be considered as the cutaneous localization of a general constitutional disease, really identical with lupus pernio. In the first part of his book Professor Snapper gives an admirable account of this condition (recently called Besnier-Boeck-Schaumann's disease), based on thirteen cases he and Dr. Pompen had the opportunity of studying. In these patients no fewer than thirteen different localizations of the typical nodules were observed, swelling of the hilar gland in the chest being the most constant finding. Lesions of the skin, on the other hand, were not always present. The radiological picture may closely resemble "chronic miliary tuberculosis." Since the outlook for the patient with Besnier-Boeck's disease is good, its presence may account for some of the cases of so-called "healed" miliary tuberculosis. Jüngling's syndrome, or osteitis "tuberculosa" cystica multiplex, is merely the localization of the same disease in the fingers and toes. Professor Snapper maintains that there is no evidence that Besnier-Boeck's disease is tuberculous in origin.

The second part of the book gives an equally excellent account of "regional ileitis." Professor Snapper asserts that tuberculosis of the intestine is found only in patients with active tuberculosis of the lungs. In non-tuberculous patients a special ulcerative inflammation of the ileum may be observed (described by Crohn, Ginzburg, and Oppenheimer in 1932). Macroscopically and microscopically many characteristics of tuberculosis are seen, but, again, tubercle bacilli are never discovered in them even when animal inoculation is carried out. Professor Snapper gives a detailed account of six personal cases of this disease.

The production of this volume cannot be too highly praised. The format, the binding, the paper, the printing, and the lay-out all show a lavishness that will be the envy of many authors. The ample illustrations on glazed board are superb. It is a pity, therefore, that the English, though quite good, has not been more thoroughly revised.

HYGIENE AND DISORDERS OF INFANCY

Clinical Paediatrics (The Baby). Edited by W. R. F. Collis, M.A., M.D., F.R.C.P., F.R.C.P.I., D.P.H. With a Foreword by Andrew H. Davidson, M.D., F.R.C.P.I., F.C.O.G. (Pp. 460; 89 figures, 17 plates, 7 tables. 21s. net.) London: W. Heinemann (Medical Books). 1938.

Care of Infants and Children. By Harry Lowenberg, sen., A.M., M.D. (Pp. 300. 10s. 6d.) London: McGraw-Hill Publishing Company. 1938.

Dr. W. R. F. Collis has succeeded in editing a useful and practical volume on *Clinical Paediatrics* in which seventeen of his colleagues in Dublin assist him in presenting the main facts about the hygiene and disorders of infants, especially during the earliest part of infancy. Clearly the book has grown out of the work at the valuable infants' department of the Rotunda Hospital (commended in a foreword by the present Master, Professor A. H. Davidson); and the chapters on the newborn baby, in which Dr. Collis has written most of the sections, show a skilful application of modern knowledge to the special conditions of the neo-natal period. The rest of the book is less original, but contains most that practitioners and students need know about feeding and the common medical and surgical disorders of infants, with chapters on diseases of the eye, ear, nose, and throat. Dr. Collis acknowledges the help of his teachers, but unfortunately manages to get the initials and spelling of their names wrong in several instances. Indeed, as a whole the book shows signs of hasty editing, but this does not detract

from its essential value as a common-sense and practical handbook for those concerned with the care of infants.

Dr. Harry Lowenberg, sen., has written a popular volume on *Care of Infants and Children* which intelligent mothers should find most useful. Nurses and even young medical graduates could also learn a great deal about normal infant and child hygiene from its pages.

SURGERY FOR ESSENTIAL HYPERTENSION

The Surgical Treatment of Hypertension. By George Crile. Edited by Amy Rowland. (Pp. 239; 52 figures, 15 tables. 18s. net.) Philadelphia and London: W. B. Saunders Company. 1938.

Although the surgical treatment of essential hypertension is but a recent development the results which have been published to date do not suggest that a treatment which will give uniformly good results has been found. Dr. Crile in this volume presents the thesis that when the coeliac ganglia are removed there is an increased fall in blood pressure which, too, is more lasting. It is early to say whether or not Dr. Crile's new treatment will be the method of choice in the future, as his first operation was performed on May 6, 1936, and his records only cover a period of about twelve months from the time of operation. It must be admitted that in his hands coeliac ganglionectomy produces a greater fall in blood pressure than does any of the other operative procedures at present in use. One must criticize, only on general principles, an operation which is carried out almost entirely by touch. There does not seem to be any valid reason for this "touch dissection," especially since so many surgeons are acquainted with the methods of coeliac anaesthesia by the transperitoneal route. Some modification of this method to enable it to be used for extirpation of the ganglia seems to present no serious anatomical difficulties, with the added advantages that (*a*) preliminary anaesthesia of the ganglia might give some idea of the probable result of extirpation on the blood pressure, and (*b*) all of the structures to be removed could be identified seriatim in full view. Dr. Crile develops his argument for the removal of the coeliac plexuses in an interesting way and has added a most complete bibliography and discussion of the literature of the treatment of essential hypertension by surgical methods.

Notes on Books

The thirteenth edition of Osler's *Principles and Practice of Medicine* has been revised by Dr. Henry A. Christian (Appleton, 35s.). Originally brought out in 1892, two years after the first edition of Taylor's *Medicine*, it has run a very similar course, the ninth, tenth, eleventh, and twelfth editions having been produced by Thomas McCrae. From his position as professor of medicine at Harvard and as a pupil of Osler and a friend and colleague of McCrae, the new editor, who is anxious to continue its traditions, will be heartily welcomed by all those who have been educated on this outstanding work. While closely following the inherited characteristics, much—about two hundred pages—new material has been added, and this edition is a worthy successor of its twelve predecessors.

The third volume of the first series of *New International Clinics* (J. B. Lippincott Company; 4 vols., 50s.) contains twenty original articles; a symposium on some of the uses of sulphanilamide, including its employment in the pneumonias, urinary infections, pelvic infections, and diseases of children; clinical lectures on Bright's disease, heart disease, retroperitoneal meningococcus infection, obesity, and acute hypocytic lymphatic leukaemia; and a review of recent work on pyelitis in pregnancy. Among the original articles special attention may be drawn to those on clinical and experimental observations on adrenal insufficiency, diabetic acidosis, favourable and unfavourable results from the practice of modern obstetric trends and procedures, present status of the surgical management of peptic ulcer, dermatitis from wearing apparel, urology for the general practitioner, caudal anaesthesia in proctology, and pulmonary tuberculosis and heart disease in anthracosis.

Die natürliche Heilweise im Rahmen der Gesamtmedizin (the place of natural therapy in medicine) contains a series of some thirty lectures by different persons, and is edited by Dr. C. ADAM. The editor explains the general purpose of the volume as follows: "The new German therapy is distinguished by the striving after synthesis. The desire of the Reichsärzteführer is to build into scientific medicine the valuable portions of empirical and folk medicine. This is in accordance with the desires of all well-wishers to the health of the German people." The volume includes articles on many aspects of modern therapy and also articles on homoeopathy, folk medicine, etc. It is published by Gustav Fischer of Jena at RM. 14.

Preparations and Appliances

HEPATEX-T FOR THE TROPICS

Hepatex-T (Tropical), which is manufactured by Evans Sons Lescher and Webb Ltd., is a combination of liver principles intended for the treatment of the nutritional macrocytic anaemias which arise in tropical countries. These anaemias were first recognized as occurring in pregnancy, but have been produced in experimental animals by nutritional deficiencies. The disease was found to be relieved by liver feeding or by crude extracts of liver, but this effect is now known to be due to factors other than anahaemin. An unknown factor, vitamin B_1, and the vitamin B_2 complex all appear to be concerned. The same is more or less true in the case of sprue.

Hepatex-T (Tropical) is a preparation for intramuscular injection (dose 2 c.cm.), which is believed to contain all these factors, which are beneficial in the tropical anaemias mentioned.

CRYSTALLIZED TESTOSTERONE

Sterandryl (Roussel Laboratories, Ltd.), a preparation of crystallized testosterone propionate, is an oily solution intended for intramuscular administration and is supplied in three concentrations: 5, 10, and 25 mg./c.cm.

Investigation of the clinical action of the male sex hormone has been hampered until recently by the difficulty of obtaining adequate quantities, but the synthesis of testosterone has now been achieved. The practical significance of this advance is indicated by the fact that extraction of a quarter of a ton of bulls' testicles would be needed to provide 25 mg. of pure hormone. The makers provide a booklet explaining the mode of employment and possible clinical applications of the preparation. Promising results have been recorded with the use of testosterone for the relief of symptoms due to enlargement of the prostate. The dosage recommended is a series of injections on alternate days of doses of 5 to 25 mg.

IODO-CAFFEINE ELIXIR

Elixir iodo-caffeine compound (Evans Sons Lescher and Webb Ltd.) contains caffeine sodium iodide, together with hyoscyamus, valerian, and sal volatile. It is recommended for various purposes, including that of producing a sedative action in chronic asthmatics.

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THE STATUS OF PATHOLOGY

The decision to endow a lectureship as a memorial to the late Professor E. H. Kettle has been generally applauded. The first of these lectures, an abstract of which appears on page 1162, was delivered by Professor W. W. C. Topley, who is peculiarly qualified to undertake this task by his long and intimate association with the man whom it commemorates, and by community of ideas with him on the subject of the lecture itself. "The Place of Pathology among the Medical Sciences" was a matter upon which Kettle had very decided views; they were, in fact, principles which guided his life. That a deeply considered pronouncement on this subject in its widest bearings should be interwoven, as in this lecture, with repeated tributes to his influence and achievements would be in his own estimation the most gratifying honour which could be paid to his memory. Kettle was one of those men to whom the science of pathology owes the respect in which it is held, and the breadth of his outlook, the patience and determination of his experimental work, and his insistence on securing adequate evidence before drawing conclusions, are held up as a model to which future effort should conform.

Professor Topley traces the development of the sciences on which medicine is based, and in particular of those which the term "pathology" embraces, and makes a number of proposals for the advancement of their study and for the advantage of those who follow it. The keynote of almost all of these is a greater breadth of individual outlook. No one deserves to be called a pathologist who, although his chief occupation may ultimately be morbid anatomy, bacteriology, or pathological chemistry, does not know his way about in the other two of these spheres; and this means that in the early stages of his career he must be permitted and indeed encouraged to employ himself in more than one of them, and perhaps to explore the "profitable borderlands" between them. The medical bacteriologist should not be simply a botanist, either merely pursuing a systematic study of a primitive form of plant life or employing a number of laboratory tricks which happen to be useful in the diagnosis of disease: the host is his concern as well as the micro-organism, and the whole of the changes produced by infection in the body are within his province and should be an object of his study. The dependence of one branch of pathology on another, and the advantages of familiarity with both, have never been better illustrated than in Kettle's work on the tissue changes produced by infection, and notably his study of the infective element in silicosis. If there is one of these branches of which a far wider diffusion of knowledge is necessary, it is certainly morbid histology: not only is a mental picture of the bodily changes in disease helpful in the intelligent pursuit of any type of pathological work, but, as Professor Topley points out, there is a serious dearth of really proficient morbid histologists. This may not be due only to the counter-attraction of the experimental field, as he suggests, nor even to the limited income entailed, but also to the lack of opportunities for systematic advanced study. There is, in fact, no course in this subject corresponding to that for the diploma in bacteriology, and neither experimental research, owing to its necessarily limited scope, nor the haphazard experience of a year or two in the diagnostic laboratory and the post-mortem room, can altogether take its place.

The same underlying idea permeates the proposals made for the betterment of undergraduate education. The student's career is at present a series of stern and disconnected exercises, and when at last he finds himself among patients he is apt to think that everything without a bearing obvious to himself on how to handle them is thenceforth irrelevant and safely to be forgotten. To break down the barriers which must exist in his mind between the pre-clinical sciences and clinical medicine would indeed be a step forward, and neither the ruthless pruning nor the collaboration between widely separated departments which it would involve is impossible. The teaching of pathology itself, how, and more particularly when, it should be done, has been much debated recently, and there can be few who are satisfied with the present position. In most schools it is an "ancillary" subject in the clinical years, not over-kindly treated in the matter of available time, and competing for the student's attention with the new human interest and obvious practicality of clinical work. It is too apt to be regarded as a matter of merely learning to identify things, whether under microscopes or in bottles, or to perform tests which are useful in diagnosis. Let there be no mistake about the claims of the pathologist for his subject. It is not ancillary to medicine but the foundation of it. The learning of pathology is not a mere academic exercise and an extension of facilities for diagnosis;

it is a fundamental necessity for comprehending the processes of disease, and hence for intelligent and progressive treatment or prevention. For this claim to be sustained the teaching of pathology must be of corresponding nature; it must be related to medicine in the way meant by Boyd when he writes: "A world of disordered function lies revealed in any lesion if we only have the eye to see it." It must, in fact, make the student think, and future progress depends on there being more with inquiring minds—men who are not content to know that a thing is so but want the reason why.

Another problem with which Professor Topley deals is the rival claims of teaching, routine diagnostic work, and research. The majority of pathologists in medical schools—including bacteriologists, for whom the difficulty is perhaps greatest—have to apportion their time between all these three things, if indeed the last of them is not crowded out altogether by the other two and perhaps by administrative work as well. Each of the three can benefit from the others, but only on condition that none claims too large a share of his time. For the individual pathologist this is the most pressing problem of all, and any future development which lightens his burden will bear fruit in more than one direction.

PLAY THERAPY AND CHILD GUIDANCE

Since the establishment of the kindergarten system in the latter part of the last century it has been increasingly recognized that the play of children serves a special function, not only in their education but in the maintenance of their mental health. Given otherwise similar conditions, those children who have opportunity to play freely—whether in the streets or in the nursery—tend to develop a more active and stable disposition than those bounded in this respect. Conversely, observation of a child at play provides material for accurate diagnosis of the mental and emotional condition. The well-balanced child is one who can happily express in play the fantasies which are the essence of his emotional life: the play of the maladjusted or neurotic child is commonly inhibited, compulsive, or ambivalent in character. With the development of psychopathology, especially during the last ten years, further investigations into the play-life of childhood have revealed its importance as a presentation of the unconscious as well as the conscious mind, a form of expression comparable to the verbal free association of adults and therefore of inestimable value in the fields of child guidance and child psychiatry. And so of recent years there has arisen in child guidance clinics and elsewhere a service known as play therapy. From the recognition of these two factors—the place of play in the mental hygiene of childhood, and its value in the treatment of children's psychological disorders—play therapy has developed both as a means of prophylaxis and as a method of treatment. It includes the organization in schools of activities that may encourage a high standard of mental health, and the treatment in child guidance clinics, hospitals, and elsewhere of the psychogenic disorders of childhood—with extremely encouraging results.

In 1924 Karl Abraham declared that "the future of psycho-analysis is in play analysis." In 1928 Mrs. Klein published a paper describing the use of toys and miniature figures in play analysis. Work has also been done at the Institute of Child Psychology, and in various child guidance clinics, especially the Tavistock Clinic, methods of play therapy have been studied and developed. The method employed is founded on the one hand upon extensive study of child development—physical, mental, and emotional—and on the other hand upon an intimate personal knowledge of unconscious processes, normal and abnormal. This latter, comparable to the knowledge of physical anatomy gained by dissection, is regarded as an essential preparation for the play therapist. In the treatment of psychological cases play therapy, though it owes much to the research work of the psychoanalysts of childhood, is developing its own technique, adapted especially to the necessary limitations of work under out-patient conditions. Equipment, which is by no means costly, is designed to provide objects corresponding to those of importance in the child patient's experience and fantasy, a miniature cosmos which he himself can direct. Among these objects are elemental materials such as sand and water; small figures representing the family constellation; houses and fences that enclose or protect; objects that take in and eject, such as pumps or mincing machines; cars, aeroplanes, and their instruments of power; plastic material and the means of graphic and dramatic expression; constructional toys; also objects which by their shape, size, or colour may be charged with special symbolic significance. No suggestion is given as to the child's choice or use of material. He is completely free to do what he likes with it, so long as he injures neither himself nor the observer. It has been found advisable to keep the apparatus as simple as possible.

The free use of such material by a child or group of children in the presence of a benevolent but neutral adult who is sufficiently trained to encourage expression while avoiding stimulation or suggestion is in itself beneficial and may even prove enough for the resolution of minor psycho-

logical disorders, especially those of social maladjustment. For more severe cases a different method is employed, and the child is always treated individually. Two major factors have to be considered: the reactions of the child to the therapist, and the situations presented in the play itself. The validity of these, as representing the child's emotional life with its underlying emotional conflicts, depends upon the skill of the play therapist, who has to provide in the treatment room an atmosphere in which the child may feel so secure, so free from blame or praise, that he may dare to be himself and to express himself happily without self-consciousness. Obviously such conditions can be created only by an observer who is emotionally secure and competent to assess his own reactions, since the dramatic play of small children tends to arouse the emotions of childhood dormant in the adult, as illustrated by the classic example of the father who monopolizes the toy trains of his small son. The therapist must acquire a technique for controlling voice and movement (established so firmly as to be automatic) comparable to that of the surgeon in avoiding the introduction of any fresh infection during operation. An inappropriate phrase or gesture may be as dangerous as an unsterilized swab. In psychological cases, obviously, *ars est celare artem,* so that the child perceives only a friendly individual who seems ready and competent to help him. Under such conditions of security the child can express in his play and tolerate those feelings which were once repressed because intolerable to a weak developing ego—and which, because their natural outlet was blocked, have become a source of emotional hypertension. As the play situations develop and unconscious conflicts are revealed these are re-presented to the patient in his own terms—that is, in the objective terms of his play, but in relation to the reality situation. In this way bogies of the unconscious mind come from their dark corners into the daylight, and, seen in their true perspective, lose the terror of the undefined. At the same time the child's natural forces making for mental health are enabled to reassert themselves; there is a gradual reorientation of the whole personality, and the re-establishment of confidence, happiness, and mental vigour.

Although statistics are not so far available, results of this method appear very satisfactory over an age range of 2½ years to 17 years, the amount of play relative to verbal expression normally decreasing with the age increase. Suitable types of cases include: (*a*) nervous disorders—depression, anxiety, phobias, obsessions, night terrors, sleeplessness; (*b*) habit disorders—enuresis, nail-biting, etc.; (*c*) educational difficulties—backwardness in intelligent children, unmanageable behaviour, bullyings or timidity; (*d*) delinquency—pilfering, truancy, lying, etc. Among adolescents treatment has been successful with cases of a schizoid type, as well as with conversion hysteria, and in severe stammering when a verbal approach is difficult. It does not appear suitable for the majority of delinquents over 10 years old, although in some of these cases it has proved useful. It must, however, be remembered that the emotional balance of the child may, like his metabolism, be easily upset and quickly readjusted. Much caution must therefore be exercised in putting forward claims for cure when all that has happened is that therapy has coincided with the natural resolution of a transient disturbance. This must especially be borne in mind in any attempt to assess the results of treatment statistically.

THE TESTING OF DISINFECTANTS

We have referred before to the proceedings of those committees of the British Standards Institution which have been engaged during the past few years in defining standard methods for the testing of disinfectants. The need for authoritative definition of such methods can only be fully appreciated by those who have had experience with them; a variation of technique in any of a dozen directions may considerably affect the coefficient obtained, whereas rigid adherence to a method prescribed in every detail will give results which are constant within narrow limits. The original request for standardization of the Rideal-Walker method came from the disinfectant industry, which has for many years accepted this test as an index of the quality of its products. Disinfectants are sold with a guaranteed Rideal-Walker coefficient, and discrepancies between the results of tests by seller and buyer, due often to varying technique, have been the cause of frequent disputes. The object of this effort was attained by the publication of a British Standard Technique for the Rideal-Walker test in 1934 (British Standard Specification No. 541, 1934). Whatever the commercial convenience of this achievement it did not meet the need for a recognized method of testing disinfectants under more severe conditions, designed to imitate those in which most disinfectants are expected to act. It is fairly generally known that a major obstacle to disinfectant action is what is usually called organic matter, represented, for example, when the object is the disinfection of excreta, by all the material of which faeces are composed. In the presence of such material some types of disinfectant which yield high Rideal-Walker coefficients become completely ineffective, and even disinfectants of coal-tar origin lose much of their activity as judged by the minimum dilution required for complete sterilization. Moreover, this proportion varies with their composition, being least with phenol and solutions of cresols, and greatest with emulsions of tar acids of higher boiling-point, of which many proprietary disinfectants of this kind are composed. The Chick-Martin test, which actually employs faeces as added organic matter, has

been used to a limited extent for many years as an index of practical disinfectant power, and it forms the basis of a second method, which has now been made the subject of a British Standard Specification.[1] The principal modification which this method has undergone is the substitution for dried faeces of a suspension of yeast; this change was originally proposed by L. P. Garrod,[2 3] and has several advantages. Dried human faeces, besides being unpleasant to prepare and work with, are of necessity inconstant in composition, whereas a suspension of commercial yeast is readily prepared, can be adequately standardized in composition, and represents organic matter in both dissolved and particulate form similar in nature to material of excremental or vegetable origin which a disinfectant may encounter in practice. It remains to be seen how far this test will be adopted by public health authorities and other users of disinfectants. The sphere of its applicability is not defined in the specification, but it will doubtless be recognized that the test is appropriate only for disinfectants to be used outside the body. The definition of suitable methods for assessing the capacity of surgical disinfectants is a task which has not yet been begun, nor is it, so far as we are aware, even in contemplation.

IMMEDIATE DIAGNOSIS OF DIPHTHERIA

Apart from microscopical examination of the swab, which is often unsatisfactory, the bacteriologist can rarely be certain of the presence of diphtheria bacilli in less than eighteen hours, with the result that in practice the clinician must decide for himself whether or not to give serum treatment. Working under the direction of Professor A. Sordelli at Buenos Aires, Dr. A. Manzullo[4] not only has succeeded in considerably shortening the time required for a bacteriological diagnosis but has evolved a method by which an immediate diagnosis may be made at the bedside. He observed that if the swab was inoculated into a tube of blood–tellurite medium, prepared according to Horgan and Marshall's formula with the omission of the agar, and incubated at 37° C., black spots developed on the swab within about three hours. Microscopical examination of these spots showed that they contained diphtheria bacilli; confirmation was afforded by plating and by guinea-pig inoculation tests. It was further observed that these spots appeared on actual pieces of pseudomembrane that had been torn off while taking the swab, and that only pseudomembrane containing diphtheria bacilli reacted in this way. Manzullo conceived the idea of applying a tellurite solution to the pharyngeal pseudomembrane *in situ*. In practice he makes up a 2 per cent. solution of potassium tellurite in distilled water, dissolving it at a temperature below 40° C. After soaking the swab in the solution he applies it to the pharyngeal exudate, taking care not to touch the tongue during the process. If the patient is suffering from active diphtheria blackening of the exudate is visible in five to ten minutes; otherwise no change in colour occurs. In seventy-two out of seventy-five cases complete agreement was reached between the results of this bedside method and the bacteriological diagnosis in the laboratory. One or two precautions are necessary. The tellurite solution must not be kept for more than a month. False results may be obtained if methylene-blue has been applied locally or if the patient has used a mouth-wash containing tannic acid or hydrogen peroxide. It must be understood that the method is essentially one for the diagnosis of active diphtheria, whether of faucial or of nasal type; it is useless for the detection of healthy carriers. How early in the disease the reaction becomes positive is not stated, but even if it does no more than afford confirmation or otherwise of the clinician's diagnosis in cases presenting definite changes in the pharyngeal mucosa it should prove of considerable value.

[1] British Standard Specification for the Modified Technique of the Chick-Martin Test for Disinfectants, No. 808, 1938.
[2] *J. Hyg.*, Camb., 1934, **34**, 322.
[3] Ibid., 1935, **35**, 219.
[4] *Folia biol.*, 1938, Nos. 86 and 87, pp. 365–371.

WHAT IS VITAMIN P?

Szent-Györgyi and his co-workers[1 2 3 4 5] claimed that the "natural" vitamin C of plant tissues, particularly of fruit juices, was superior to the synthetic ascorbic acid in the treatment of various pathological conditions characterized by increased permeability of the capillaries, and that this superiority was due to the presence in the fruit juices of a substance which they named vitamin P and identified as a flavone, "citrin." Its effect on vascular permeability was then demonstrated in guinea-pigs, which when fed on a scorbutic diet plus 1 mg. "citrin" daily lived longer than guinea-pigs fed on the diet alone. Later it was shown that "citrin" was not a pure substance but a mixture of crystals of hesperidin and an eriodictyol glucoside, the former in much the larger proportion. When hesperidin was obtained in pure form it was found to have vitamin-P influence on guinea-pigs. Thus it was concluded that the syndrome of experimental scurvy in guinea-pigs was due to a deficiency of both vitamins C and P. Zilva,[6] however, in repeating this work on guinea-pigs found that daily doses of 1 mg. of "citrin," of a mixture of $\frac{2}{3}$ mg. hesperidin and $\frac{1}{3}$ mg. eriodictyol, or of 1 mg. of purified hesperidin did not delay the onset of scurvy or the fatal termination of the disease in guinea-pigs on a scorbutic diet. Moreover, a daily dose of 0.1 mg. or 0.2 mg. of ascorbic acid (doses much lower than the minimum prophylactic dose) produced a condition resembling that obtained by Szent-Györgyi by a dose of 1 mg. of "citrin." Zilva's[7] guinea-pigs had received a pre-experimental diet at least as good as that declared by Bentsath[8] to be necessary for the demonstration of the vitamin-P effect, and yet he failed to obtain it. Lotze[9] has recently made a full investigation of two commercial preparations of "vitamin P" and of nearly pure hesperidin prepared from them. His examination was made by spectroscopic and chemical means, by animal experiments, and by clinical trials on human subjects. Chemical and spectroscopic tests showed that

[1] *Dtsch. med. Wschr.*, 1936, **62**, 1325.
[2] *Nature*, 1936, **138**, 798.
[3] Ibid., 1937, **139**, 326.
[4] Ibid., 1936, **138**, 1057.
[5] Ibid., 1936, **138**, 27.
[6] *Biochem. J.*, 1937, **31**, 915.
[7] Ibid., 1937, **31**, 1488.
[8] *Hoppe-Seyl. Z.*, 1937, **247**, 258.
[9] *Dtsch. med. Wschr.*, 1938, **64**, 477.

his preparations did not fully accord with those used by Szent-Györgyi and his co-workers. However, he found that, including the nearly pure hesperidin, they had a certain amount of biological action; it was very much less than that of vitamin C itself, but it enhanced the action of vitamin C when used in combination with it. In his clinical trials he observed that the commercial preparations exerted an influence similar to that reported by the Hungarian workers. Lotze therefore suggests that the active preparations, and perhaps "nearly pure" hespiridin itself, contain some substance belonging to the flavone group which is not without biological activity, and that the preparations found by other workers to be inactive, though apparently very like the active ones, did not in fact contain the active substance. At present, therefore, it seems to be less a question of whether vitamin P really exists than of what vitamin P really is.

DID COLUMBUS DISCOVER SYPHILIS?

The origin of syphilis has been hotly disputed by medical historians for many years, but the consensus of opinion has gradually hardened so that now it is generally accepted that it was introduced into Europe from the Western Hemisphere. Dr. Victor Robinson has summarized in an interesting article[1] much of the evidence in favour of the American origin of the disease which remains valid, although foreign scholarship and American patriotism have combined in the attempt to remove the origin of syphilis from the New World. One single case of syphilis in pre-Columbian Europe would throw the entire American theory to the ground, but that single case has not been produced. On the other hand, within a year of the return of Columbus from the island of Haiti it had spread from Spain to Italy and France. The evidence of contemporary Spaniards is extremely significant. Dr. Robinson quotes the words of Capitan Gonzalo Fernandes Oviedo y Valdes, a man who was appointed supervisor of the foundries of gold in America and who lived in Haiti. He says: "Many times in Italy did I laugh, hearing the Italians say the *French* disease, and the French calling it the disease of Naples; and in truth both would have hit on the right name if they had called it the disease from the Indies. . . . Great was the wonder produced in all that saw it, not only because the disease was contagious and horrible but because many died of this disease." Then there is the testimony of the celebrated Las Casas, the one humanitarian among the Spanish explorers. He devoted most of his long life to the welfare of the Indians and was known as the Apostle of the Indies. He agrees with Oviedo in stating that the natives of Haiti gave syphilis to the white race. Both Oviedo and Las Casas state that the Indians treated it successfully with guaiacum. Another authority is the Spanish surgeon Ruiz Diaz de Isla, who published a book in 1539 called the *Treatise Concerning the Serpentine Disease*, which was the name he gave to syphilis. By the time he wrote this book he had had forty years' experience of syphilis—that is, from 1492 onwards—and believed he had observed over 20,000 cases. He, too, maintains that syphilis was unknown in Europe until Columbus and his crew returned from Haiti (which he discovered during his first transatlantic journey) and infected the inhabitants of Barcelona. He says the "serpentine disease" appeared and was seen in Spain in 1493, in the city of Barcelona, "which city was infected, and subsequently all Europe and the Universe in all known and communicable parts." Unfortunately Ruiz Diaz de Isla is by no means an absolutely satisfactory witness, for after the above statement, which would seem to be unimpeachable evidence for the American origin, he immediately contradicts himself by asserting that his "serpentine disease" is identical with the lichen of the Greeks and the kiss-spread mentagra of Pliny. Moreover, while he shows signs of being an acute clinical observer, inasmuch as "three species" of his "serpentine disease" approximate the three stages of syphilis famous to us all, he almost simultaneously destroys our confidence in him by stating that he has seen cabbages suffering from the disease! A further interesting suggestion we do not remember to have seen made before is that Columbus himself may have suffered from syphilis, for his good health prior to his discovery of America contrasts vividly with his subsequent invalidism. He suffered from arthritic and ophthalmic complaints, prolonged fever, swollen legs, and cardiac dropsy. Although none of these is conclusive evidence, there are modern clinicians who believe that Columbus in discovering America also discovered syphilis, and was one of its early victims.

[1] *Brit. J. Derm. Syph.*, November, 1938.

THE GORDON TEST FOR LYMPHADENOMA

The intracerebral inoculation of rabbits with autolysed suspensions of lymph glands from cases of lymphadenoma was originally performed by M. H. Gordon in an attempt to transmit a hypothetical infective agent to the animal, which responds in no characteristic or significant way to any other method of inoculation. The result was a fatal encephalitis with highly characteristic clinical features, and it was only caused by glands from cases of lymphadenoma; on the other hand, it was not transmissible in series, and could therefore not be accepted as indicating the presence of a micro-organism. Thus what originally held out some promise of throwing light on the aetiology of the disease became a diagnostic procedure, and has been extensively used for this purpose. An important step towards an understanding of the mechanism by which this effect is produced in the rabbit was the demonstration by Friedemann that it can also be produced with extracts of normal bone marrow. Since this observation a large variety of tissue extracts has been tested, and it is now generally believed that a positive result depends on the presence in the tissue used of certain types of cell, the autolysis of which liberates the encephalitogenic agent. A recent paper by McNaught[1] gives reasons for concluding that the encephalitogenic property depends solely on the presence of eosinophils. According to this author there is perfect correlation between the degree of infiltration with eosinophils seen in section and the result of the rabbit test, and the proportion of cases of lymph-

[1] *J. Amer. med. Ass.*, 1938, **111**, 1280.

adenoma in which the test is positive and of those in which eosinophilic infiltration is present is the same—namely, 70 per cent. He also obtained positive results in the rabbit with extracts of tissues containing many eosinophils but quite unrelated to lymphadenoma. If this conclusion be accepted, it would appear that the test gives no information not obtainable by the simple inspection of a section; but experience suggests that the matter is not quite so simple, and there is experimental evidence that the active agent is not confined to the eosinophil. Edward,[2] although his results with eosinophilic material anticipate those of McNaught, also obtained positive results with suspensions of neutrophil leucocytes in the form of sterilized pus and of lymphocytes from the blood in lymphatic leukaemia. Until the nature of the agent has been more clearly defined it will perhaps be wise to withhold final judgment on its source.

REFORM OF THE PENAL LAWS

The Criminal Justice Bill which was recently introduced in the House of Commons by the Home Secretary shows the great influence which medical, and especially psychological, science is exerting in the treatment of criminals. The importance of the probation system is recognized by provisions for its reorganization and extension. The sentencing of young offenders to imprisonment is to be greatly restricted and later, when other methods have become available, practically abolished. Remand centres and remand homes are to be established to receive young persons who are considered to need special medical observation and who would otherwise be remanded in prison. Two interesting new experiments are proposed. As an alternative to fines or short terms of imprisonment, young people convicted of minor offences will be required to attend at a "compulsory attendance centre" during half-holidays or in the evening after work, when they would otherwise be enjoying themselves at the pictures or watching a football match. It is to be hoped that they will be put to some intelligent occupation at these centres; if they are merely made "to hang about" the experiment will do more harm than good. The relevant sections mention appropriate occupation and instruction, but do not appear to make these obligatory. The second innovation is the Howard Homes for young persons who do not require Borstal training but ought to be taken away from bad associations. They will go out to their ordinary employment during the day but be under discipline at other times. Corporal punishment will be abolished as a judicial penalty and only survive as part of prison discipline under strict limitation. Persistent offenders will be liable to receive sentences of corrective training and preventive detention. The medical examination of offenders when they are before the court will be much facilitated by the provision which enables the court to remand an offender on bail with a condition that he submits himself to medical examination, the cost being paid by the State. Courts have hitherto had the power to certify an offender as a mental defective but not as a person of unsound mind; magistrates are by this Bill given power to certify a person of unsound mind on the certificates of at least two doctors. There is no provision that one of these shall be on the panel of practitioners approved for this purpose by the Board of Control, and an amendment should be made to bring the section into line with the Mental Treatment Act, 1930. Courts placing on probation an offender who suffers from some form of mental illness or abnormality which is susceptible to treatment will be able to make a condition of the probation order that he shall submit to mental treatment, either as an in-patient or as an out-patient. This will regularize such action as was taken a year ago by the Wakefield magistrates in placing an offender on probation with a condition of residence in a mental hospital. "Criminal lunatics" become "State mental patients," and their asylums "State mental hospitals": Broadmoor will be transferred to the Board of Control. The Bill has been severely criticized in some quarters for making a conviction necessary before a probation order is made. The present absence of this necessity has been regarded as one of the best features of the probation system. The Bill contains a clause which nullifies any disqualification which would attach to sentence, but this would not cancel the stigma which conviction carries in the eyes of most of the community. Apprehension has also been expressed at the power to be given to magistrates of courts to sentence young offenders to Borstal. Doubtless these and other points will be hotly debated in committee. On the whole the Bill reflects a great increase in humanity and appreciation of psychological fact. It is for the medical profession to provide sufficient persons with the skill which would qualify them to assist the courts in the disposal of offenders who would profit from treatment under medical direction, and to advise the courts on the measures most likely to prevent the offender from returning.

[2] *Lancet*, 1938, 1, 936.

To-day, Friday, December 2, at 5 p.m., Professor R. E. Kelly delivers the Bradshaw Lecture on "Recurrent Peptic Ulceration" before the Royal College of Surgeons of England. On Thursday, December 8, Mr. H. A. T. Fairbank will give the Robert Jones Memorial Lecture on "Increased and Decreased Density of Bone, with Special Reference to Fibrosis of the Marrow"; and on Thursday, December 15, Sir Humphry Rolleston will give the Thomas Vicary Lecture on "The Early History of Morbid Anatomy in England."

The ninth annual reports of the National Radium Trust and Radium Commission for the year 1937–8, including a statistical report, are published this week as a pamphlet of sixty-six pages by H.M. Stationery Office (Cmd. 5883, 1s.). Reference to their contents will be made in a later issue.

We regret to announce the death of Dr. William McDougall, F.R.S., professor of psychology in Duke University, North Carolina, formerly Wilde Reader in Psychology at Oxford and professor at Harvard; and of Dr. Harold Pritchard, emeritus physician to the West London Hospital.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

FRACTURES AND DISLOCATIONS OF THE SPINE

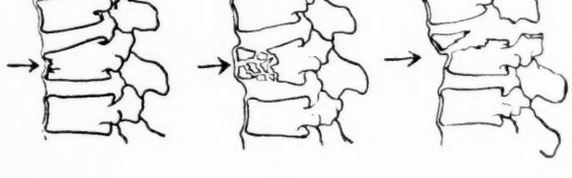
BY

HARRY PLATT, M.D., M.S., F.R.C.S.

Mechanism of Spinal Injuries

The majority of fractures and dislocations of the spine occur at the three levels of greatest mobility: (*a*) in the upper cervical region (atlas, axis); (*b*) in the lower cervical region (fifth, sixth, and seventh cervical vertebrae); and (*c*) in the dorso-lumbar region (eleventh and twelfth dorsal and first and second lumbar vertebrae). A brief consideration of the effects on the spine of certain forces is essential to a clear understanding of the principles of treatment.

Vertical Compression.—This mechanism is chiefly responsible for the crush fracture of a vertebral body produced by a fall from a height on to the buttocks or heels. The force is transmitted through the anterior column of the spine, and is expended on a single vertebral body, usually the twelfth dorsal or first lumbar, which collapses and becomes wedge-shaped (Fig. 1, A). If the



A B

FIG. 1.—A: Compression fracture—wedge deformity. B: Hyperflexion fracture—comminution. C: Hyperflexion fracture-dislocation.

force is more widely diffused slighter degrees of wedging may be seen in the vertebrae immediately above and below the site of the main crush. Another well-known but uncommon clinical type of compression injury is the fracture of the posterior arch of the atlas produced by a blow on the top of the head.

Hyperflexion.—In this mechanism the spine is suddenly bent forwards by violence applied either to the upper part of the back and shoulders or to the head. The crush fracture of the coal-miner produced by a fallen roof is the most familiar example of this type of injury. Hyperflexion fractures take one of the following forms: (*a*) collapse of a single vertebral body, often with comminution and rupture of the underlying intervertebral disk (Fig. 1, B); (*b*) the classical fracture-dislocation of the lower cervical or dorso-lumbar region in which the pedicles are broken or, less frequently, a dislocation takes place at the intervertebral joints. This is followed at once by forward displacement of the vertebral body and a narrowing of the spinal canal immediately below (Fig. 1, C). In a certain proportion of cases the displacement undergoes spontaneous recoil. In fracture-dislocations accompanied by cord injury the violence is often unusually severe, and well-marked bony displacement is the rule. The neural lesion is coincident with the bony injury and may be a simple contusion or a complete transection of the cord. Where bony displacement persists the cord becomes attenuated at the site of the protrusion.

Rotation.—Rotation, combined with flexion, is the force producing subluxations or dislocations of the cervical spine unaccompanied by fracture. These uncommon injuries, of which several types are described, may result from comparatively trivial violence. The best-known type is the unilateral forward subluxation at the level of the fifth or sixth cervical. Involvement of the cord or nerve roots is rare, except in the bilateral dislocations, which may be immediately fatal.

Hyperextension.—Hyperextension fractures of the spine are exceedingly rare. In this type of injury the compression force falls on the posterior part of the anterior column. If the broken vertebral body is comminuted the risk of protrusion of a fragment into the spinal canal is considerable.

Hyperextension of the head combined with vertical compression is the mechanism concerned in fractures of the odontoid process of the axis.

First-aid Treatment of Spinal Fractures

Although the treatment of fractures and dislocations of the spine demands all the resources of the modern fracture clinic the fate of the injured individual may be influenced for good or ill by methods used in administering first aid or during the transport of the patient to hospital. A study of the mechanics of spinal fractures suggests that a movement or posture which tends to perpetuate the crushing force in a compression fracture, or to increase the displacement in a fracture-dislocation, will be harmful or even disastrous. In the great majority of spinal fractures the dangerous movement is forward flexion of the trunk or neck. It is important, therefore, to lay down certain rules of conduct for the guidance of those who may find themselves responsible for the emergency treatment and transport of an individual with a suspected or proved fracture of the spine.

1. The public should be taught that an injured person who has lost the use of his arms and/or legs should not be lifted or carried before the arrival of a doctor or trained ambulance worker.

2. In a fracture of the dorso-lumbar region the patient should be carefully rolled over on to his face and a pillow placed under the upper part of the chest. This manœuvre alone may be sufficient to reduce a fracture-dislocation. In lifting him on to the stretcher the position of extension of the spine should be maintained. If no stretcher is available at the site of the accident—as at the seam-face in a coal-mine—the victim should be carried to the first-aid post in the prone position.

3. When a spinal fracture is accompanied by a severe chest injury, a head injury, or by fractures of the lower limbs, the prone position may be impracticable or dangerous. In such circumstances the spine should be extended by placing

a firm support under the back at the level of the injury. During transfer to the stretcher care must again be taken to avoid any movement of flexion.

4. In a fracture of the cervical spine the prone position is also contraindicated. Extension should be temporarily obtained by placing a small pad underneath the neck. It should be remembered that lifting the head to enable the patient to drink from a cup is a dangerous action. When a patient with a high spinal fracture is moved, firm traction should be applied to both the head and the lower limbs.

5. On arrival at hospital, if the patient is not severely shocked, radiographs should be obtained without delay. All films should be taken without altering the position of extension for a single moment.

Recent Crush Fractures

The exact anatomy of a spinal fracture should be clearly defined in both antero-posterior and lateral radiographs

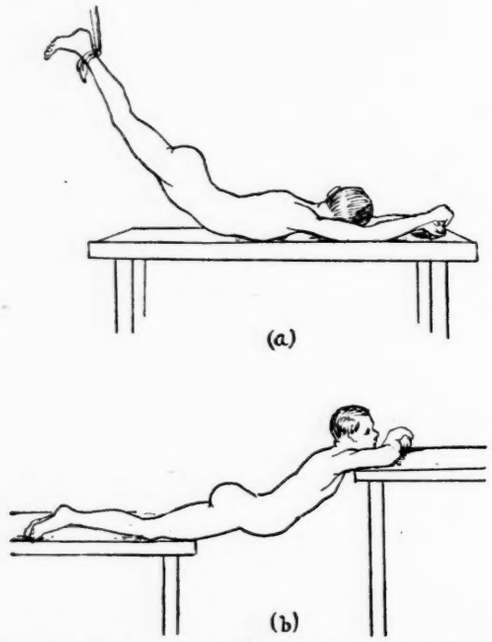


FIG. 2.—Davis (a) and Watson-Jones (b) methods of reduction of crush fractures by postural hyperextension.

before deliberate reduction is attempted. The deformity of a crush fracture should be corrected in all patients who are young or in the prime of life, and who may reasonably be expected to return to arduous occupations. Reduction aims at restoring the full vertical height of the wedged or comminuted body.

In the case of compression and hyperflexion fractures in the dorso-lumbar and lower dorsal regions reduction is achieved by hyperextending the spine to its limit, utilizing the tension of the intact anterior common ligament as an aid to reduction and as an internal splint to maintain reduction. The simplest and most effective methods of reduction are those devised by Davis and Watson-Jones. In the Davis method the patient, lying prone, is slung by the heels (Fig. 2, a). In the Watson-Jones technique the patient is suspended between two tables with the trunk unsupported, a position which allows the lumbar spine to sag into the maximum degree of hyperextension (Fig. 2, b). For the reduction of recent fractures no anaesthesia is required. When the maximum hyperextension has been obtained a closely fitting plaster jacket is applied over a layer of stockinet. The jacket extends in front from the pubis and groins to the clavicles and is cut out behind over the upper part of the dorsal spine (Fig. 3). In this way the hyperextended position is continuously maintained and forward flexion of the spine is impossible. The accuracy of the reduction should be confirmed in radiographs taken in two planes. A second jacket should be applied some three weeks later when the original jacket has become less close-fitting. At this stage a check lateral radiograph should be obtained.

It is generally agreed that early ambulatory activity should be encouraged in crush fractures of the spine. Much depends on the age, temperament, and physical condition of the patient. The younger individuals should be allowed to sit up after a few days and to walk at the end of a week. Elderly patients—and more especially those with fractures in the mid-dorsal region, where complete anatomical reduction is rarely, if ever, achieved—can with advantage be kept in bed or on a couch for the first three or four weeks.

The position of hyperextension should be maintained until there is clinical and radiographic evidence of consolidation of the fracture. This will generally mean that the spine must be immobilized and protected for not less than four months from the time of the injury. During the latter part of this period many patients are able to engage in light duties. After the final removal of the jacket a rehabilitation programme is arranged. The functional and anatomical results of the treatment of crush fractures of the vertebral bodies by the method of hyperextension are most gratifying. Seventy-five per cent. of the patients so treated should be able to return to their original occupations.

With hyperextension fractures the method of reduction described is definitely contraindicated, for the obvious reason that further hyperextension of the spine may produce cord damage. In these cases the jacket should be applied with the spine in the ordinary neutral position.

FIG. 3.—Plaster jacket maintaining hyperextension.

Old Fractures: Kümmell's Disease

In the case of crush fractures undiagnosed in the early stage or treated ineffectively, the patient may later present himself complaining of backache, persistent rigidity, or increasing deformity. This clinical picture, when appearing after a long interval, was formerly known as Kümmell's disease (spondylitis traumatica). The treatment to be considered in such cases is: (*a*) a period of rest followed by the fitting of a support—a course suitable for elderly patients who cannot hope to return to heavy duties; or (*b*) in the younger individuals the operation of spinal fusion, which is generally effective in curing the backache.

Correction of Fracture-dislocations

CERVICAL REGION

The common fracture-dislocation of the cervical spine with forward displacement at the level of the fifth or sixth vertebra calls for prompt correction. If the signs of cord or root compression are present no time should be lost. Two methods of reduction are available.

Reduction by Manipulation.—The technique devised by A. S. Taylor of New York has been successfully used for some years by many different surgeons. The patient

is placed on a fracture table and a halter applied to the head. A stout cord or rope is attached to the side rings of the halter and passed round the waist of the surgeon. With the neck securely controlled between the surgeon's hands, steady traction is now exerted by a backward movement of the body. Counter-traction is provided by the fixation of the lower limbs to the traction bars of the table. The traction force is first applied in very slight flexion in order to disengage the articular processes. When the neck is felt to elongate, the head and upper part of the spine are allowed to drop back into the position of extension. The accuracy of the reduction is checked in a lateral radiograph, and the head and neck are then fixed in a plaster-of-Paris cast.

Gradual Reduction by Continuous Traction.—This is a recent innovation which has already proved to be particularly effective in the reduction of fracture-dislocations of the upper part of the cervical spine (Mackenzie, Turner, Cone, Crutchfield, and others). The traction is applied direct to the skull either by special tongs which perforate the outer table or by wires passed through drill-holes and connected to a cross-bar (Fig. 4). The

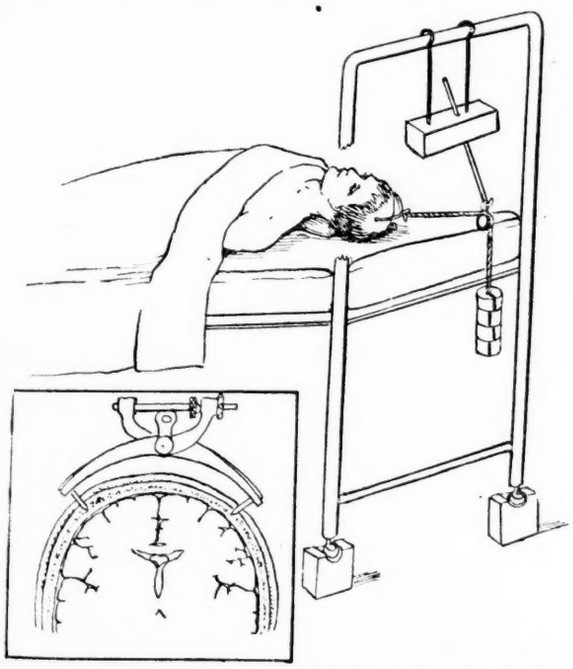


FIG. 4.—Skeletal traction on the head in fracture-dislocations of the cervical spine. (The diagram inset shows the application of the tongs to the skull.)

points of attachment to the skull should be chosen so that the pull is in the long axis of the cervical spine. Counter-traction is provided by raising the head of the bed. A weight of 10 to 15 lb. may be required for a short time to correct gross displacement.

In recent fractures the reduction takes place almost immediately. In fractures of some weeks' standing correction is a gradual process. In cases without cord injury, if the patient is in good condition, the tongs can be removed after the reduction has been confirmed in the lateral radiograph and a "Minerva" plaster jacket applied. In severe cord lesions it is wise to keep up light traction (that is, 4 or 5 lb.) for ten to fourteen days, and if the patient survives this critical period to apply the plaster at a later stage. This method of skeletal traction enables a paraplegic patient to be nursed with safety and comfort. In this respect alone it undoubtedly represents an important advance in the technique of treating fractures. Skeletal traction is of course inapplicable if there is infection of the scalp.

It will be realized that the reduction of a fracture-dislocation of the cervical spine by either of the methods described requires special training and a high degree of manipulative skill, as well as the necessary armamentarium.

DORSAL AND DORSO-LUMBAR REGION

In hyperflexion fracture-dislocations without cord injury reduction by hyperextension should be carried out as soon as the patient is fit.

In paraplegic cases, although the fate of the cord has been determined from the moment of the injury, the correction of gross displacement is no less essential. The precarious condition of many patients during the first few days, however, makes the ordinary reduction and application of a plaster jacket a distressing and hazardous undertaking. Where for good reasons it is necessary to veto or postpone any attempt at complete correction the patient should be placed in the hyperextended position in a well-padded bivalved plaster bed in which he can be turned repeatedly without flexing the spine. If an air mattress is used hyperextension can be obtained by inserting a rolled blanket under the mattress at the level of the lumbar spine (Byron Stookey).

In a small proportion of fracture-dislocations of the dorso-lumbar region, accompanied by severe injury to the lower end of the cord and roots of the cauda equina, reduction by manipulation or by gravity is impossible owing to interlocking of the dislocated articular processes. In such cases hyperextension not only is ineffective but is also a dangerous manœuvre, which may inflict grave additional damage on the cord or nerve roots. When this type of dislocation is recognized the correct procedure is to operate and remove the superior articular process of the vertebra immediately below the displaced body. This allows the articular processes to be realigned and the displacement of the body corrected.

Treatment of Paraplegia

The modern methods of reduction of fracture-dislocations have entirely supplanted the operation of laminectomy. Despite increasing experience in the handling of spinal fractures the mortality in cases with neural involvement continues to be high. A number of patients die in the first few days from shock or from the effects of other injuries. Of the survivors, some die during the first few weeks from such complications as urinary tract infection, bedsores, or pneumonia. Patients who reach the stage of reflex cord function may live for many years, and in the less severe cord lesions a useful measure of control over the paralysed limbs may be regained.

The prevention of bedsores and contractures and the care of bladder and bowel function demand skilled nursing. The areas of skin in contact with the air mattress or plaster bed at points of greatest pressure should be constantly shifted by gentle stroking. The prevention of urinary infection is the greatest responsibility of all. In a few patients the bladder may be emptied by pressure, but in the majority some form of regular catheterization is necessary. This must be done with the strictest aseptic precautions. A safe and effective method is to use an in-dwelling catheter, changed every five or six days. The bowels should be regulated by mild aperients or enemata, and over-distension should be avoided. The paralysed limbs should be supported in the standard positions, and after the stage of spinal shock is

over all joints should be gently moved through a full range each day. Energetic stretching is to be condemned, as it tends to increase the muscle spasm. When there is recovery of useful cord function the patient may be allowed to get up and re-education in walking may be begun.

Dislocations of the Cervical Spine

There is usually no difficulty in reducing by manipulation the slighter degrees of subluxation of the cervical spine. After a short period of protection in a light plaster collar full recovery of function rapidly takes place. In the rare bilateral dislocations with signs of cord pressure reduction by manipulative traction or skeletal traction should be attempted without delay.

Fractures of the Atlas and Axis

Fractures of the posterior arch of the atlas are often overlooked owing to the mild disability to which they give rise. Stiffness of the neck and occipital neuralgia following a fall on the head are symptoms which should arouse suspicion. When the fracture is recognized a plaster "doll's collar" should be worn for four to six weeks, but the patient can be allowed to lead a free ambulatory existence.

Fracture of the odontoid process of the axis may occur alone or may be associated with fracture of the atlas. In the early stages there is obviously a serious risk of displacement and of a fatal result. With prompt and efficient immobilization sound fibrous or bony union takes place in eight to twelve weeks. In an odontoid fracture the head and neck must be securely fixed in a well-fitting plaster cuirass, which prohibits all movements at the injured site. In this, with due precautions, the patient can be ambulatory. Complete immobilization should be maintained for not less than eight weeks. After this the chin and occiput should be supported by a light collar for another two months. In cases treated early the results are excellent.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

The annual report of the London School of Hygiene and Tropical Medicine for 1937–8 suggests that the School has had an active and successful year. The usual courses of instruction were given in public health, tropical medicine and hygiene, and bacteriology, and the classes were well attended. The policy of providing short courses of instruction for non-medical men and women has been extended by the institution of a conference on the applications of physiology and psychology to problems of industry. The object was to provide for persons holding supervisory posts in industry an opportunity of learning something of recent advances in research bearing on the health of the industrial worker. It is announced that a similar course will be held in February, 1939. A conference on the control of malaria organized by the Ross Institute principally for planters and mining engineers attracted a record attendance of 186. The organization of courses of instruction for laymen is perhaps an unusual activity for a medical school, but there can be no doubt of the value of such work in the case of a school concerned primarily with the preventive aspects of medicine.

Research during 1937-8

The principal lines of research reported by the School last year have continued to be prosecuted. The Departments of Bacteriology and Biochemistry have made satisfactory progress with their joint work on the isolation of purified antigenic compounds from pathogenic organisms, including those of typhoid and whooping-cough. Professor Robinson of Oxford is now associated with this work, and it is being in part supported by the British Dyestuffs Corporation, a subsidiary of Imperial Chemical Industries Ltd. The long-range study of experimental epidemics, which is supported by a grant from the Medical Research Council, has been continued jointly by the Departments of Bacteriology and Epidemiology. The work in 1937–8 has confirmed the preliminary findings of the previous year—namely, that a diet containing a proportion of animal protein, when compared with a diet that includes vegetable protein only, not only makes individual mice more resistant to infection with *Bact. typhi-murium* but significantly reduces the mortality in herds in which the disease is spreading by natural contact. The Department of Entomology has paid special attention to the habits of insects of medical importance in relation to climatic factors. On behalf of the Medical Research Council an investigation into the biology of the bed-bug has been continued, and climatic conditions have been studied in relation to its mortality and its ability to hatch. Studies of various species of anopheline mosquitos have included research in Assam on the effects on *Anopheles minimus* of microclimates, particularly in relation to humidity; and a laboratory study of the effect of both high and exceptionally low concentrations of chlorides and other salts in water on the larvae of mosquitos. This latter work has involved the development of a technique of chemical estimations on a minute scale. Dr. Hamilton Fairley made a further visit to Macedonia, and he suggests that the anaemia which is found to occur extensively there results from the prevalence of malaria in a population suffering from dietary deficiency. The Laboratory of Industrial Physiology undertook, at the request of the General Post Office and of the Union of Post Office Workers, an investigation of the energy expended by postmen when delivering letters from house to house, and when ascending and descending long flights of stairs in blocks of flats. It is announced that an arrangement has been entered into with the International Wool Secretariat under which the laboratory will undertake a programme of research into the hygienic properties of clothing. The Institute of Agricultural Parasitology, which is associated with the Department of Medical Parasitology in the School, has acquired an out-station at Gamlingay on the borders of Cambridgeshire and Bedfordshire with a view to extended field work on eelworm disease in potatoes.

Work Over-seas

The School has developed its oversea contacts. Through the Ross Institute it has maintained a branch in India which is principally concerned with measures for the control of malaria on tea estates in Assam and in South India. A branch has been set up in Ceylon to co-operate with the Ceylon Estates Proprietary Association; and it is announced that arrangements have been completed for the establishment of a branch in West Africa which will be associated with a group of industrial firms, principally mining companies, operating on the Gold Coast. The Ross Institute has continued to advise industrial concerns in the selection of medical officers for appointments over-seas.

The Order of St. John and the British Red Cross Society have arranged, through the Ministry of Pensions, as in previous years, to provide additional comforts for the men actually in Ministry hospitals on Christmas Day. There are, however, ex-Service pensioners who will be patients in other hospitals *as a result of their war disabilities*, and the Joint Council of the two bodies is endeavouring to get in touch with these hospitals, so that no eligible cases in hospital on Christmas Day may fail to receive the same gifts as those in Pensions hospitals.

SOME OBSERVATIONS ON SHOES

BY

THOMAS MARLIN, M.D., D.P.H., D.M.R.E.

Medical Officer in Charge of the Physiotherapeutic Department, Hampstead General Hospital

Apart from the provision of surgical boots, the medical profession has given little consideration to the question of footwear. Sir Robert Jones advocated the prolongation of the heel on the inner side along with a wedge on the inner side of the shoe for flat feet and other conditions. Mr. Trethowan took a cast of the foot, and on this cast was fashioned a metal support to be worn inside the shoe. Lately a heelless shoe has been marketed on the advice of a medical man, and from Canada comes a shoe bearing the name of another medical man. From time to time suggestions have been made about altering the shape of the shoe—that is, the outline—to conform more with the contour of the foot, and there has been the usual outcry against the size and shape of the heels on ladies' shoes, but little or nothing has been said regarding the foundation and construction of the shoe, and the physiological stimuli initiated by the shoe through the toes and sole of the foot.

Consider the Bare Foot

In anything which follows I may be reminded that savages do not wear shoes, to which I will simply answer that there are enough people in these islands suffering through defects in their shoes without worrying about savages in the meantime. Nevertheless, it may be convenient to approach the subject from the bare foot, and the first thing we observe is that the texture of the skin is not the same all over the foot. Over the heel, on the outer border of the sole, on the pads under the heads of the metatarsals, and over the pulp of the toes the skin is thick. On the rest of the sole—that part lying between the heel and the heads of the inner metatarsals and generally termed the long arch of the foot—the skin is thin, merging into the thin skin on the dorsum of the foot. This suggests that the weight-bearing part of the sole is that outer part first mentioned. Reflection on this leads us to doubt whether it is wise at any time to lengthen the inner side of the heel or put wedges in the inner side of the shoe, and in practice I have never yet seen a case which did not benefit by having such alteration done away with and the shoes adjusted in practically just the opposite manner. Also at this moment I might utter a protest against those manufacturers who would put all children into shoes with the heels prolonged on the inner side, for it cannot be too strongly emphasized that the skin on the inner side of the sole should be left quite free from weight bearing.

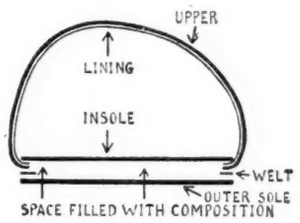
Further proof of this contention is afforded if we walk on the floor in bare feet, when we can feel for ourselves that the outer part of the sole comes in contact with the floor. If now we stand on one of those supports sold for the longitudinal arch or on a metatarsal pad or bar we realize how uncomfortable and crippling they are. And we also note how in our bare feet we avoid nails, irregularities of the ground, and anything else uncomfortable. It would seem unnecessary to mention that such discomforts should be avoided in the shoes, yet one continually finds people being crippled through want of such care. Nor would we care to walk barefooted along a rut in the road, or inside a piece of guttering with the centre of the foot and the middle toes dropping down and encouraging what is described as a dropping of the anterior arch. Yet some shoes act like this, because during wear the insoles become boat-shaped—not boat-shaped in outline, but boat-shaped from side to side because they drop in the centre. This is referred to later.

The Building of a Shoe

The foundation of a shoe is the insole, and on this the shoe is built. The insole is that part of the shoe with which the sole of the foot comes into contact, and therefore corresponds to the ground when barefooted. If this is carelessly or wrongly made, if it is irregular and not smooth, or if it has bumps and hollows or sharp edges, or if during wear it develops these defects, then it can cause crippling of the feet and paralysing effects on the body generally. On the other hand, in a correctly made shoe with a proper insole, not only is fatigue of the foot and body eliminated, but the foot and toes, being able to expand and work against the resistance of the insole, receive vital stimuli which are communicated to the rest of the body.

It is interesting to watch a shoe being built. To begin with, a last is obtained, which is a block of wood somewhat the shape of the foot, and it is important that the sole of the last should be correct, though I am afraid most lasts are defective in this respect, with the result that such defects are conveyed to the insole. To make the insole, a piece of leather is soaked in water till it is mellow, after which it is rolled or hammered out, cut to the shape desired, and then hammered to the sole of the last and kept in position with nails. When it dries the insole retains the conformation of the last.

While the insole is still in position the upper (with its lining) is fitted over the last and sewn to the insole, and to the edge of the upper is sewn the welt. The welt we are all familiar with; it is a strip of leather about an eighth of an inch thick and half an inch to three-quarters of an inch broad, running round the sole as far as the heel. It thus forms a backing to which the outer sole can be sewn without taking the stitches through the upper.



It will be observed that in such an arrangement a space is left between the insole and the outer sole; it is shown diagrammatically in the figure. Manufacturers fill this space with a composition such as sawdust and glue, but in a very short time the heat and moisture from the foot soften this composition, so that it becomes worked into bumps, and allows the insole to fall down in the centre, thus causing the boat-shaped condition referred to above. Manufacturers must find a way of overcoming this.

In front of the heel is the waist, and it is important that this should not break or sag and allow the cuboid bone to drop. It is possible to achieve this by leather alone, and I am strongly against the steel or wooden shank pieces which are so much used. They are so rigid that they paralyse the foot, yet they are fitted in some of the most expensive proprietary shoes. Since I have been advocating that the outer part of the foot should be supported I have seen an American shoe advertised as built to "support the vital outer arch of the foot," but in this shoe are metal strips running through from the heel, making the shoe quite rigid.

Rigidity must not be confused with the resistant force of the insole which has already been mentioned. This resistance is partly due to the resilience of the insole itself, but is also due to the pull between the upper and the insole. For this reason there is very little resistant force in sandals, and as rubber and canvas have not the resilience of leather there is no resistant force in shoes

made of these materials. Moreover, shoes made on the same last by different workmen may vary in an extraordinary manner: some may be full of life, and others quite dead, according to the way they have been lasted.

With respect to the outline of the shoe there is not so much ground for complaint. One can get such a variety to choose from—narrow shoes, broad shoes, pointed or blunt toes, or with a straight inner border. The latter style is supposed to prevent the condition of hallux valgus; but people with this disorder need not be compelled to wear ugly shoes, for it is possible to give them pointed shoes and still provide room inside for the enlarged joint.

The Problem of Heels

This does not worry men so much as women. Girls' shoes have flat heels with a good superficial area in contact with the ground. But at some peculiar transitional period in their lives the girls suddenly appear before us in ladies' shoes, with heels of varying heights and diminished superficial area. Now, however much we may wish we could alter these matters, they seem to be beyond our control, because the ladies are determined to have their high heels. And the practical fact is that high heels seem to be necessary for about 90 per cent. of our womenfolk—they feel better in high heels than in low heels. Instead of simply condemning high heels it would be better for us to try to obtain a sensible heel and still provide ladies with the height they want. I don't mean that spindle-shaped heels three inches high should be worn, but I do not object at all to one and a half inch or even two inch heels. Very pointed heels are bad because of the difficulty of balancing, and we must also guard against heels which come so far forward that the wearer is all the time tending to overbalance backwards.

Medical Bearings of Shoe Construction

In this article I have merely tried to present some of the problems in the making of shoes in which we, as medical men, have an interest, the chief point being the construction and function of the insole. This must be so fashioned on the last and presented to the sole of the foot in the shoe that the outer part of the foot strikes the insole first and the inner arch is left quite free. When this is so, then the foot takes its normal spring in the shoe. But as shoe manufacturers have for years forgotten or neglected some of the things I have mentioned, many foot troubles have developed: rigid joints, flat-foot, contracted toes, contracted tendons, minor deformities, want of tone in the muscles, limpness and deadness of the toes so that they fail to spread and work against the insole, dropping of the heads of the metatarsals so that people are walking on them and producing all manner of nervous disturbances. And many of these changes in the feet seem to be correlated with different organs of the body, disorders of these organs being influenced by a correction of the shoes.

To go into this question and to discuss how certain disorders reflect themselves in the feet and shoes, and how to recognize such signs, would occupy much space, because the subject is very complicated. For the same reason it would be impossible here to show how corrections are made in existing shoes; but in the main we might say that adjustments are generally made between the insole and outer sole, and the wedges pared at the edges so that they are not apparent to the casual observer, and the shoe mender should as far as possible deal with any defects which have appeared in the insole. Finally, the soles should be sewn and not nailed, because, apart from any other damage caused by nails, they destroy the welt and make further repairs more difficult and unsatisfactory.

INTERNATIONAL NEUROLOGICAL CONGRESS
COPENHAGEN, AUGUST, 1939

The third International Neurological Congress will be held in Copenhagen from August 21 to 25, 1939, under the presidency of Professor Viggo Christiansen. The following is an outline of the arrangements so far as these are now settled.

An informal meeting at the Restaurant Nimb on the evening of Sunday, August 20, will be followed by the official opening of the congress at the Rigsdag Building on August 21 at 9.30 a.m., after which there will be a discussion on the endocrine-vegetative system, with special reference to neurology, under the chairmanship of Professor L. van Bogaert and Professor H. Pette. The official rapporteurs for this discussion are: Sir Henry Dale (London), Dr. Laruelle (Brussels), Professor Fulton (New Haven), Dr. O. Foerster (Breslau), and Dr. Forsberg (Oslo). In the evening there will be a reception by the Corporation of Copenhagen at the Town Hall.

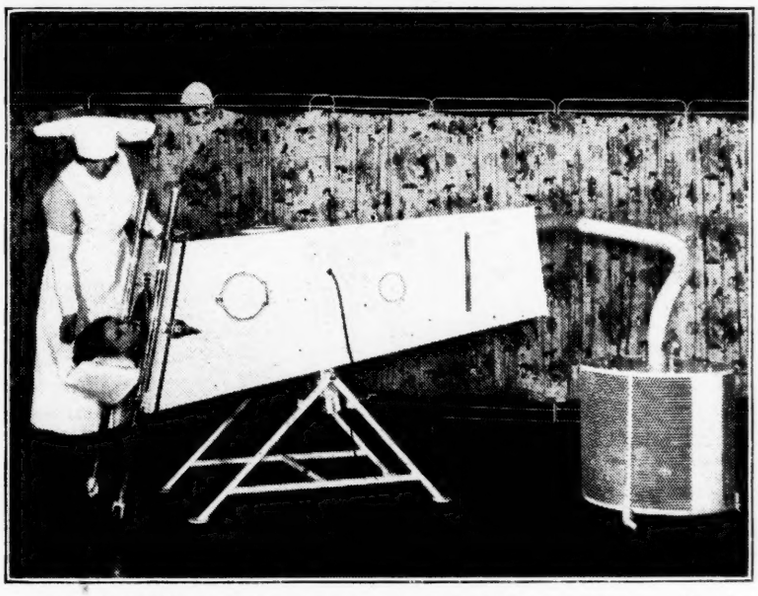
On August 22 there will be a discussion on heredofamilial disease, especially from the genetic aspect, under the chairmanship of Professor G. Guillain and Professor V. M. Buscaino. The rapporteurs are Professor B. Sachs (New York), Professor André Thomas (Paris), Professor Jonesco-Sisesti (Bucarest), Professor Curtius (Berlin), and Professor Schaffer (Budapest). For August 23 no scientific business has been arranged, but there will be excursions to Frederiksborg Castle, Hillerd, Kronborg Castle, etc. On August 24 short papers will be read on various neurological and neurosurgical subjects, followed by the official banquet in the evening. The subject for discussion on August 25 is "Neurological Aspects of the Avitaminoses with Special Reference to the Peripheral Nervous System," under the chairmanship of Professor Monrad-Krohn. The rapporteurs are Sir Edward Mellanby (London), Professor G. C. Riquier (Pavia), Dr. J. S. Wechsler (New York), Dr. D. McAlpine (London), and Dr. H. P. Stubbe Teglbjaerg (Copenhagen). In the evening a reception will be held at the King's summer residence, Fredensborg Castle.

Applications for active membership from neurologists in Great Britain should be made to the Secretary of the British National Committee, Dr. Macdonald Critchley, 137, Harley Street, London, W.1, to whom the subscription (40 Danish kroner) should be paid. Associate membership is open to non-professional persons, men and women, interested in the congress, subscription 20 Danish kroner. Papers bearing on one of the three main subjects or on any aspect of neurological medicine are invited. The maximum time allotted is ten minutes. Titles of communications, together with an abstract not more than 150 words long, should be sent to the Secretary of the British National Committee by April 1, 1939. Arrangements for travel and hotel accommodation are in the hands of the American Express Company, 6, Haymarket, London, S.W.1 (Telephone: Whitehall 4411).

H. Ensing (*Nederl. Tijdschr. Geneesk.*, 1938, **82**, 5381) records his observations on seventy-nine cases of actinomycosis treated at the Gröningen Academy Hospital during the last thirty years. The localization of the disease was as follows: neck and jaw, forty-six cases; thorax and lungs, two; abdominal wall and abdominal organs, thirty-one. Of the fifty-one male adults thirty-one were agricultural labourers, while the occupation of the remaining twenty brought them much less in contact with the soil (clerks, factory workers, and others). The ages of the patients ranged from 15 to 35. There were fifteen adult women patients, and of thirteen patients under 20 seven were males and six females. In more than half the cases infection took place by the buccal mucosa. In twenty-three of the thirty-one cases of abdominal actinomycosis the primary localization was in the ileo-caecal region, in two in the sigmoid, and in one in the rectum, while in the other five the primary focus could not be discovered. Recovery took place in 88 per cent. of the cases in which the neck and jaws were involved, and in 28.5 per cent. of the abdominal cases.

DEMONSTRATION OF MECHANICAL RESPIRATORS

In view of the general interest in the use of the apparatus popularly known as the "iron lung" in the treatment of poliomyelitis and paralysis after diphtheria, the Public Health Department of the London County Council arranged at County Hall a demonstration of the several types of mechanical respirators used in its institutions. The Council began using mechanical respirators in 1934, the year in which the first English-made "iron lung" was introduced, and now it has sixteen of them in operation, including at least one in each of its acute infectious diseases hospitals. One of the objects of the demonstration was to encourage other local authorities to equip their own hospitals in this manner. The Council is constantly being asked for the loan of its apparatus, and with the best will in the world it is not always possible to comply.



Case of diphtheria with respiratory paralysis being treated in mechanical respirator (tilted) at the North-Western Hospital, London County Council. Respirator designed for use in the Council's hospitals.

Since the design of the original Drinker respirator in Philadelphia, a number of refinements and accessories have been added in this country with a view to making the apparatus safer and more convenient in use, more comfortable for the patient, and more effective in treatment. Some of these were shown embodied in the L.C.C. Drinker model. More recently a machine identical in principle with the Drinker respirator has been designed, having a chamber of laminated wood instead of metal, together with other modifications more especially to facilitate nursing. This new respirator is mounted on a tripod stand with a worm-and-sector tilting device. It has a constant-speed motor, with bellows driven at rates of 18, 22, and 28 respirations per minute, and all the working parts are enclosed in a steel cylinder which protects the mechanism from dust and eliminates noise. In the working out of this cheaper, lighter, and more transportable respirator the staff of the Council has had the advantage of consultation with Mr. Both, an Australian technician.

Another apparatus shown was an improved jacket respirator. The original jacket was widely used in Australia during an epidemic of poliomyelitis last year, and was described and illustrated in a paper by Professor A. E. Burstall of Melbourne in the *British Medical Journal* of September 17, 1938 (p. 611). It consists of a one-piece aluminium cuirass enclosing the trunk of the patient from neck to waist. The Council staff believes that the modifications it has made in this apparatus have resulted in a great improvement on the original and has eliminated some of its admitted disadvantages. It now consists of an aluminium jacket shaped to the thorax and made in two pieces, back and front. These halves join at the sides by thumbscrew nuts on an air-tight joint. The shape of the armholes has been altered to afford more freedom, the design of the rubber diaphragm has been modified, and an escape valve provided to regulate the depth of the respirations. The respirator is operated by a one-eighth horse-power motor designed to drive a suction bellows at a fixed speed of 20 double strokes per minute. The jacket respirator does not replace the cabinet—in which the patient is wholly enclosed save for the head and which may be essential in the treatment of certain cases—but it has advantages in simplification. The patient with this appliance can, of course, be nursed in an ordinary bed. Another apparatus on view was the pulsator for prolonged artificial respiration, designed by Mr. R. W. Paul at the suggestion of Sir William Bragg.

Coincident with the demonstration came the announcement of Lord Nuffield's offer whereby hospitals in the country having cases requiring respirators may be equipped. Like all Lord Nuffield's gifts, it is marked by largeness and a sense of what is needed. It must be borne in mind, however, that the respirator is still in a state of evolution, and probably many modifications will yet be made, just as new uses will be found for it (already it is suggested in cases of drowning, carbon monoxide poisoning, partial electrocution, mine explosion, and war casualties). When presently it is stabilized it may be a much simpler affair than the still quite formidable arrangements which were on view in London. It will be unfortunate if Lord Nuffield's most generous offer has the effect of stereotyping the present patterns.

[The photograph reproduced is by the Photographic Department, L.C.C. Southern Laboratory.]

F. Tecilazic (*Minerva med.*, 1928, **29**, 451) states that the specific action of vitamin B_1 in beriberi neuritis has suggested its use in other forms of neuritis, and records his personal observations on forty-one cases of diphtheritic paralysis. Of five severe cases of paralysis of the diaphragm and of the muscles of deglutition two recovered after three or four intraspinal injections of vitamin B_1 in the form of tetrophan, while the other three died. In the remaining thirty-six cases, which were examples of paralysis of the palate with or without general hypotonus, paralysis of accommodation, and loss of reflexes, vitamin B_1 did not appear to have the slightest effect. On the other hand, in twenty-four cases of malignant diphtheria and thirty-three cases of extensive faucial diphtheria in which vitamin B_1 was given, the incidence and severity of paralysis were much less than usual.

THE PLACE OF PATHOLOGY AMONG MEDICAL SCIENCES

KETTLE MEMORIAL LECTURE

The first lecture in memory of Edgar Hartley Kettle was delivered at the London School of Tropical Medicine and Hygiene on November 24. The lecturer was Professor W. W. C. Topley, F.R.S., who chose as his theme, "The Place of Pathology among the Medical Sciences." There was a large attendance presided over by Sir John Caulcutt, chairman of the Governing Body of the British Postgraduate School, with Viscount Dawson and Colonel A. H. Proctor, Dean of the School, beside him on the dais.

Professor Topley began with a moving tribute to Kettle himself. Kettle had, he said, the rare wisdom that enabled him to keep a clear head amid the rapid emergence of new subjects and new techniques, and the adjustments that these necessitated in the older scheme of things. "He never resisted or resented them. He had an instinctive sympathy for all new things and for all young people; but in welcoming the new he did not forget the old." The lecturer quoted freely from Kettle's written papers, illustrated his successive points from Kettle's work, and said that, consciously or unconsciously, he was influenced most of all by recollections of his spoken words.

The Scope of Pathology

A growing science, said Professor Topley, not only expanded, it budded and divided. Physiology and pathology were themselves offshoots of medicine. A description of any science must be given in dynamic, not in static terms. It could never be said that pathology *is* so-and-so. It could only be said what and where it was at the moment, and which way it seemed to be moving.

In each of the biological sciences there had been a drift from the systematic study of structure and its relationship to a study of function, and from a study of any given function as an integrated whole to an analysis of the mechanisms on which that function depended. This movement was, of course, only a shift in the immediate focus of intellectual interest and effort. Structure did not become less important when viewed in terms of function; indeed, it gained greatly in significance.

Pathology, like physiology, began with the study of structure, or rather of structural changes; but it was still in this phase when physiology had undergone its metamorphosis into an experimental science. The accurate and detailed study of the changes in tissue structure associated with disease must always be an essential part of pathology as a whole; nor could a worker claim the label "pathologist" in any broad sense if he had no knowledge at all of the structural changes that are associated with disease.

"If there is any danger at the present time in regard to the relative activity of the different aspects of pathology, it is a danger of too few morbid anatomists, not too many. The rapid advances made by bacteriology and immunity, by biochemistry, and by the application, as in cardiology, of physiological methods of attacking pathological problems have invited so many workers into other paths that the expert histologist may soon be, if not a rara avis, at least a species whose future gives rise to anxiety. We cannot do without him. As a diagnostician he has an essential part to play, and he forms a firm and valuable link between pathology and clinical medicine. In the field of experimental research his potentialities are in the early stages of development; and the growing realization of this fact, particularly in this country and in America, may provide us with the records that we so clearly need."

A Question of Labels

It did not follow that pathology was morbid anatomy, or that morbid anatomists were the only pathologists. Here the lecturer thought that labelling had lagged behind practice, with results that were, or might become, unfortunate. A pathologist must have some knowledge of structural tissue change, but he must also know enough physiology to relate abnormal structure to abnormal function, enough biochemistry to understand something of the chemical causes, or consequences, of the pathological processes that he studied, and enough bacteriology and immunity to give him some insight into the mechanisms concerned in infective disease. No man could be a master in each and all of these fields; but they were all pathology, and none of them had an exclusive right to that title.

If the common use of the label "pathology" as a synonym for morbid anatomy was misleading, the label "bacteriology," in so far as it implied a differentiation from pathology, was more misleading still. The bacteriologist, properly so called, was clearly a particular kind of botanist. He studied bacteria as such. The medical bacteriologist, on the other hand, was a pathologist who was concerned with the bacterial and virus infections of men and animals. He must spend much of his time and energy in studying the parasites; but he could not neglect the hosts. The tissue changes associated with infection were clearly within his province, and here the lecturer remarked that it would be difficult to find a better illustration of the close and inevitable relationship between morbid anatomy and medical bacteriology than was afforded by Kettle's work in the years following the great war.

Methods of Pathology

Professor Topley went on to emphasize some of the factors which differentiated pathology from most other medical sciences, except clinical medicine itself. A considerable part of the pathologist's work was still concerned with the observation of naturally occurring events not subject to experimental control. He had, therefore, in common with others in a similar position, to guard carefully against drawing premature conclusions from inadequate data, and rapid solutions were unlikely to come his way. What was less often realized was that he usually suffered from a similar disadvantage when he confined himself to the experimental field. Here he thought there was as sharp a contrast as with physiology.

It would not be a gross misrepresentation to attribute the rapid advance of physiology in the last half-century to the successful designing and exploitation of "acute" experiments. By his skill in this direction the physiologist had been able to obtain rapid answers to many of his problems; not only because experiments of this type gave their answers quickly, but because their very shortness of duration helped to eliminate the chance intrusion of many disturbing factors.

Probably a similar technique would yield valuable results to the pathologist, when he was in a position to use it, and one of the hopeful signs of the present day was the entry into the pathological field of workers who had acquired a physiological technique. But for a long time to come pathologists would be largely concerned with experiments that were as "chronic" as the processes they were designed to study, and the technique of the long-term experiment would be an essential element in their training.

Scientific research might be roughly divided into two broad categories: those inquiries that could be determined mainly by the nature of the problem to be solved, and those that were determined mainly by the nature of the technique to be employed.

"The great names and the great moments of science are associated with the transient merging of these two categories.

A technique developed in an attack on one particular problem is found to be applicable to a multitude of related problems, all of which, by their intrinsic interest and importance, are pressing for solution. Such a period occurred in the bacteriological field between 1880 and 1900, when, as Löffler put it, 'Koch shook the trees and the apples fell.' But it is seldom long before the advent of a period of diminishing returns. A new technique takes its place as one of the tools of science, but the advance on that particular front slows up until some new technique is invented. There are not many Pasteurs and Kochs, and the efficacy even of these great ones depends in part on the times in which they live, and on the developments in the several branches of science that provide them with the instruments that they exploit."

At most times and for most workers the choice was less happy. A chosen problem could be attacked by slow and relatively ineffective methods, which could be developed where this seemed possible, or a technique could be selected and applied to such problems as it was clearly fitted to solve. There was a danger of judging too much on results, and particularly on the form in which results could be presented. The neat and tidy answer to one problem might represent no more significant advance than the ragged and partial solution of another. It was a misuse of words to say that the one result was more "scientific" than the other or had been gained by more "scientific" means.

Relation of Pathology to Clinical Medicine

Neither pathology nor physiology, Professor Topley continued, could ignore the problem of clinical medicine, though an individual pathologist or physiologist might be well advised to do so. The clinician on his side could not ignore pathology and physiology. An increasing amount of clinical practice derived directly from the methods devised and from the results obtained in pathological and physiological laboratories, and these in their turn depended in large part on methods and results derived from the fundamental sciences of chemistry and physics.

For convenience, labels were attached to the broad fields of activity in medical sciences and to the people who worked in them. Boundaries had been put up which called not only for separate professorial chairs but for separate institutes. Did such separation matter? So far as research was concerned the lecturer believed that for the original worker, the man who would do the biggest things, it did not matter at all. For the ordinary man it mattered much more. It was not good that a young pathologist in his early or middle twenties should be labelled a morbid anatomist, or a bacteriologist, or a pathological chemist, and run in blinkers from that day onwards. From the point of view of the application of pathological or physiological knowledge to curative or preventive medicine he believed that the existing separation mattered profoundly. It was the main reason why medical practice and medical science failed to advance as quickly as they might. Could anything be done about the present separation of the medical sciences, supposing it to be a harmful thing? The crux was clearly education.

Integration of Medical Education

The present medical curriculum was frankly a system of almost disconnected examinational hedges. He believed that the historian of medical education in this country would regard the introduction of pathology as a tripos subject at Cambridge as a turning point, not only because there were aspects of general pathology that could best be taught at this stage in a student's career, but because the introduction of pathology of the right kind would enhance the student's interest in his physiological and histological studies, and would make clear to him, while he was pursuing them, their bearing on disease processes.

He thought that there should be introduced much earlier into education the concept of disease processes, of abnormal function and structure, and that the teaching of the anciliary sciences should be continued much later in the curriculum. This would mean a scrapping of certain things that were now taught, but he would willingly let them go. If the student knew well those parts of anatomy, physiology, and pathology that had a direct bearing on his clinical work—if he knew them so that he could grasp their significance and discuss them intelligently—he would be a better scientist and a better clinician than if his heritage from his pre-clinical studies was a vague recollection of a partially digested mass of unappreciated facts and theories. This would help most substantially to break down the barrier of which he had spoken.

The Organization of Medical Sciences

But that was not all that could be done to break down the existing separation.

"I fancy that bricks and mortar are more dangerous things than is commonly supposed. I have a growing dislike of separate institutes where these can be avoided. Separate chairs of morbid anatomy, bacteriology, and pathological chemistry have become an obvious administrative necessity; but I profoundly mistrust the housing of this family of sciences in different buildings. Nor would I give to one more than another the right to adopt the family name of pathologist."

It would also be well to encourage men whose early training had been in one scientific field to migrate to another; and, again, to look favourably on a shift of subject-matter from one departmental territory to another.

One word of caution was necessary. In trying to abolish such barriers as already existed, the creation of new ones must be prevented. No man could compass the range of the medical sciences; nevertheless, it was possible to develop a common tradition, a common background of knowledge, and a common way of thought. This could best be done by breaking down existing barriers in the manner of which he had spoken, and erecting no new ones; and by training those who came into medicine to respect scientific method, which included accurate and critical observation, rather than to acquire, and then forget, an arbitrary collection of unrelated knowledge.

There was one factor, said the lecturer in conclusion, on which the success of all such purposes depended, and that was the personal one. Co-operation could never be forced, though it could be encouraged. "By Kettle's death we have lost one of our number who had the gift of true co-operation at its best. He had the widest interests and the widest sympathies, and was always able to view his own problems in relation to those of others. He has left behind him a memory and an example that none of us will forget."

An enthusiastic vote of thanks was accorded to Professor Topley for his lecture, on the proposal of Professor Francis R. Fraser.

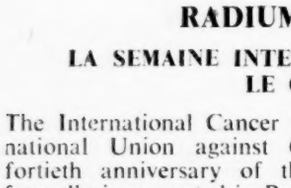
Dr. Charles V. MacKay, Acting Director of the Australian Institute of Anatomy, Canberra, contributes to the *Medical Journal of Australia* of October 1 an article, copiously illustrated, on some pathological changes in the Australian aboriginal bones. This records the author's investigations into the pathology of bones found near the River Murray in southern New South Wales. The total number of bones examined was 351. Of these specimens nearly 200 were classified as periostitis, osteitis, or osteomyelitis. Dr. MacKay discusses at length the problem of the underlying causative factor which brought about such marked changes in bone architecture, and by elimination concentrates upon some form of spirochaetal infection, either acquired syphilis, endemic syphilis, yaws, or some unknown pathological entity peculiar to the Australian race. After studying the historical, geographical, and medical information at his disposal he regards venereal syphilis as the most likely cause of the lesions.

RADIUM 1898-1938

LA SEMAINE INTERNATIONALE CONTRE LE CANCER

The International Cancer Week, organized by the International Union against Cancer to commemorate the fortieth anniversary of the discovery of radium, was formally inaugurated in Paris on November 23 by a series of notable functions.

In the morning the scientific delegates were received at the Palais de la Découverte by the great French physicist, Jean Perrin, who afterwards conducted a tour of this remarkable building, which was constructed for the exhibition held last year and contains an amazing collection of exhibits illustrating recent progress in every branch of applied physics and biology. In the afternoon the delegates were entertained to tea (and champagne) at the Hôtel de Ville and were addressed by M. le Provost de Launay and by M. Justin Godart, the President of the International Union against Cancer.



Commemoration at the Sorbonne

The climax of an eventful day came, however, in the evening when the great amphitheatre of the Sorbonne was filled to overflowing by an immense concourse of delegates from the universities, academies, and learned societies of forty or fifty countries. M. Albert Lebrun, the President of the Republic, supported by the Ministers of Education and of Public Health, presided over the gathering, and with him on the platform were the two daughters of Pierre and Marie Curie, Mlle Eve Curie and Mme Joliot-Curie; the Marchesa Marconi; and Mlle Hertz—the daughter of the discoverer of Hertzian waves—now, alas! a refugee from Germany but living in safety in England. There were also on the platform M. de Broglie, M. Gutton, M. Langevin, Professor Roussy, M. Bezançon (the President of the Academy of Medicine), Dr. Béclère (the doyen of French radiologists), Dr. Carter Wood of New York, and Professor G. P. Thomson (the distinguished son of the celebrated J. J.). British scientific institutions were represented in full force: the British Empire Cancer Campaign by Professor Woodburn Morison, Mr. Malcolm Donaldson, and Mr. Cecil Rowntree; the Ministry of Health by Colonel Smallman; the Medical Research Council by Professor Russ; Edinburgh University by Mr. Shaw; the Royal Institution by Professor Hopwood; and the Royal Cancer Hospital by Dr. Kaye.

Homage to the Curies

The proceedings were opened by the President of the Republic with a speech in which he paid an eloquent tribute to the achievements of science and in particular to the work of the Curies. His speech was followed by a broadcast from Warsaw by M. Moscicki, the President of the Republic of Poland, which on the whole came through quite clearly but was from time to time disturbed by German interference. The French President then replied in a speech broadcast to Poland. After other speeches from eminent French scientists Dr. Gendreau, the Canadian delegate from Montreal, gave great pleasure by his eloquent panegyric of the Curies, and worthily maintained the prestige of the British Empire by proving that he could easily hold his own with the great orators of France in their own tongue.

There is no question that France well knows that science should be honoured and knows well how to do it. Few who had the privilege of being present at the Sorbonne last week will forget the picture it presented. Cuirassiers of the Guard posted round the amphitheatre lent an unaccustomed touch to a scientific gathering, while the uniforms of high officers of State, the orders, stars, and ribbons of the ambassadors, the dresses of the women, and the robes of the Papal Nuncio all combined to produce a colourful and impressive spectacle.

One of the objects of the International Cancer Week is to raise funds for the International Union against Cancer, and a special set of surcharged stamps bearing the portrait of the Curies has been issued. It is satisfactory to learn that the sale of these stamps has already exceeded expectations and that the funds of the International Union will benefit accordingly.

The scientific business of the Cancer Week has continued daily and many papers bearing more particularly on various aspects of *x*-ray and radium therapy have been submitted. On the first day Mr. Cecil Rowntree gave a brief account of the anti-cancer effort of Great Britain, during the course of which he conveyed a message of good wishes from the Minister of Health and referred to the Bill which Dr. Elliot proposes shortly to introduce in the House of Commons, in order to implement the proposals with regard to the treatment of cancer foreshadowed in the King's Speech at the opening of Parliament.

GREAT MEDICAL VICTORIANS

SIR StCLAIR THOMSON'S LECTURE

At a reception given by the President of the Royal Society of Medicine (Sir Girling Ball) and Lady Ball on November 29, Sir StCLAIR THOMSON gave an address on "Medical Notabilities of the Victorian Age, as Seen by *Vanity Fair*." The periodical mentioned published for many years a series of cartoons entitled "Men of the Day." These were drawn by two artists who signed themselves "Spy" and "Ape." "Spy" was the late Sir Leslie Ward, a sensitive draughtsman, and "Ape" was an Italian artist, one Carlo Pelligrini, who scored a great success with his first caricature of Disraeli in 1869. Appended to each of the cartoons was a short biographical sketch signed "Jehu Junior." This was Thomas Gibson Bowles, the editor of the periodical and sometime member of Parliament. The Library of the Royal Society of Medicine possesses thirty-one of these cartoons which have as their subjects prominent physicians and surgeons of Victorian and Edwardian days. These were shown as lantern slides, while Sir StClair Thomson made a few remarks on the careers, personalities, and reputations of the artists' "victims."

Good Vintage Years

The year of Waterloo and the year immediately following it saw the birth of three great figures in British medicine—Sir William Jenner, Sir Willian Gull, and Sir Richard Quain. Of the first of these Sir StClair Thomson said that although a court physician he had not the bedside manner described in fiction and often represented on the stage as characteristic of a successful consultant. His chief characteristic was robust common sense. His manners were somewhat autocratic, and he allowed no sentimental illusions to blind him to the frailties of human nature. He once told his class at University College Hospital that there were two things they were bound to encounter—death and ingratitude. On another occasion, slapping his trouser pockets, he told his students that when he began practice one of those pockets was for fees, the other for affronts. But as soon as he had made his way he buttoned up the second pocket. The reference to him in *Vanity*

Fair stated: "Sir William Jenner is one of the most successful practitioners of those obscure devices to which the strongest are occasionally forced to resort, and which, even now, often consist of curing a man of one disease by giving him another."

Sir William Gull, another court physician, was somewhat of an agnostic in therapeutics, as many men were in those days following the ages during which patients had been drenched with drugs. One of his wise sayings was: "Never write a prescription which causes you any anxiety." He was a man who had decided dramatic sense, and the great Charcot, who was a psychologist, called him "*un grand poseur.*" Sir Richard Quain, the third of the trio, was often in consultation with Gull. On one occasion Quain detailed a line of treatment, but Gull said that all the patient required was a warm bed, whereupon Quain remarked that his colleague was well known for his habit of sending his patients to a warm place. Gull once suggested a little reserve in prognosis, adding, rather pontifically, "We must remember *Populus vult decipi.*" To which Quain replied, "I quite agree; the public does not like to be gulled."

Sir James Paget, who was born in 1814, was a scientific surgeon, a great teacher, a delightful writer, and a captivating orator. For the benefit of younger members of the profession Sir StClair Thomson quoted his opinion on the prospects of a career:

"Anyone with a safe knowledge of his profession and free from such faults—that is, idle, time-wasting, unbusinesslike, unpunctual, uncivil, unable to work with others—may be as certain of success in the practice of medicine or surgery, or both, as in any other business of life; or even more certain, because his prosperity may be very nearly independent of that of others."

A Later Period

Next came a group of men who were born during the first ten years of the Victorian era. Sir Francis Laking was medical attendant on three sovereigns, and a man who "could walk with kings nor lose the common touch." With his cartoon it was stated, "He is a courtly gentleman who knows his business," and Sir StClair Thomson, who knew him fairly well, said that this was an excellent description. Sir William Dalby, who was in his time the leading aural surgeon in this country, had more the appearance of a leisured squire than of a leader in a surgical specialty. His brief biography in *Vanity Fair* stated:

"He is well known in smart society, and he dines at all sorts of houses. He is a member of the Garrick . . . excellent company, and finds time to play whist every day before dinner."

Such was the well-rounded life of a London specialist in the spacious days of Queen Victoria. Sir Alfred Cooper also had a large and fashionable West End practice, and was a keen sportsman—rode in the Row every morning, shot in Scotland every autumn, and, said *Vanity Fair*, "is known as 'Alfred' and is as cheery as he looks."

Two surgeons of a later period, only a few years gone from us, who were also immortalized in these cartoons, were Sir Alfred Fripp and Sir John Bland-Sutton. Of the former Sir StClair Thomson said that he was a happy and successful man and one of the best-known surgeons in the late Edwardian and early neo-Georgian periods. Full of vigour and responsiveness, always ready to please and to be pleased, unsparing in his care and anxiety for his patients, and with an attractive personality, it was not surprising that these qualities, added to his skill, care, and experience, secured him a large, fashionable, and lucrative practice. He had the good fortune to come in on the flowing tide of surgery which followed the long-delayed but sudden and complete acceptance of Listerian principles in London. Sir John Bland-Sutton also was fortunate in that his rise in his profession coincided with the adoption of Listerism. He had the insight, training, and courage to be one of the pioneers in the great realm of surgery to which Lister had pointed. The biography described him as "the scientific mind incarnate, a born enemy of ambiguity and indecision, dangerously fond of facts, an able and experienced debater, a cold and logical writer, and an accurate observer. He is impatient and blunt, and makes no pretence of winning converts by any of the drawing-room virtues."

The Nestor of the Profession

Sir StClair Thomson's last example was one happily still with us—Sir Thomas Barlow, who was the subject of "Spy" more than thirty years ago. "Jehu Junior" stated that books always formed the bulkiest part of Sir Thomas's baggage, that he was interested in archaeology, that he consumed meals rapidly and at irregular hours, that he had an unequalled reputation in the treatment of children, and knew exactly what to say to anxious parents. "He is tactful in consultation, and avoids his neighbour's corns by doing his duty." To this Sir StClair Thomson added that his name would live in Germany, where a disease which he discovered was known as "*Barlow'sche Krankheit.*"

In conclusion Sir StClair Thomson said that he trusted his disjointed remarks had revived some happy memories among any Victorians present. These successful medical men of what the French were beginning to call "*le grand siècle*" showed that the strenuous life was not a modern invention, but had to be led by all who loved their profession.

"In our days, when medicine is rapidly becoming more and more scientific, the doctor is perhaps better able to mould his career without devoting so much care to developing and applying the art of his profession. But he will better succeed, and be a happier man, if he preserves his humanity, always remembering that the patient's first anxiety is to be cured, and not merely studied."

THE SOCIETY OF APOTHECARIES

HONOUR FOR SIR BUCKSTON BROWNE

At the Yeomanry Dinner of the Society of Apothecaries of London, held on November 22, the Honorary Freedom of the Society was conferred on Sir Buckston Browne. In introducing him to the Society, Mr. L. V. CARGILL, the Senior Warden, said that the Honorary Freedom was the highest honour the Guild could bestow, and Sir Buckston had been unanimously elected to the only vacancy both for his eminence in the profession and his munificent gifts to medicine and to science. Sir Buckston, he continued, was born in April, 1850, and came to London from Owens College, Manchester. He had been house-surgeon to Erichsen, and was associated with the celebrated lithotrotist, Sir Henry Thompson, who operated on Napoleon III. Sir Buckston had founded a scholarship in memory of his son, had given Downe House to the nation, and to the Royal College of Surgeons had presented and endowed the Buckston Browne Research Farm to the extent of some £100,000; he had also instituted an annual dinner at the College of Surgeons. After this speech the Master, Dr. Reginald Hayes, conferred upon Sir Buckston the Honorary Freedom of the Society.

A Medical Family

In expressing his deep gratitude to the Society for this honour, Sir BUCKSTON BROWNE said that he was the fifth and last practitioner of medicine in his family. His great-great-grandfather was born 225 years ago and was an apothecary in the town of Derby, and married into the family of the Buckstons. His great-great-grandmother's brother fought

at Culloden beside Wolfe, who subsequently became the famous general known to history. Continuing his interesting family history, Sir Buckston said that his great-grandfather had served seven years as an apprentice to his great-great-grandfather, and in 1797 went to London and presented himself for examination to the Company of Surgeons: this was the common way of entering the profession in those days. Finally Sir Buckston said that he himself always determined to become a doctor and came to London at the age of 18 for that purpose.

In proposing "The Society of Apothecaries," Sir GEORGE CHRYSTAL, secretary of the Ministry of Health, said that he dined in this hall and with this great and beneficent corporation with greater pleasure than with any other Company of the City. He referred to the forecast of a method used in modern medicine when at Epidaurus Asclepias arranged for serpents to bite his patients. The sons of Asclepias, he was glad to record, went into administrative medicine. Referring to the past struggles between the Society of Apothecaries and the two Royal Colleges, he observed that the Royal College of Surgeons had recently made the Past Master of the Society its President, and he congratulated Mr. Hugh Lett on attaining these two distinctions.

In reply, Dr. HAYES said that it was just forty-three years ago that he had attended his first Apothecaries' Dinner. The Society was founded in the seventeenth century as a craft guild, and assisted research by providing a scholarship, and among other activities showing that the Society was adaptable to modern conditions he referred to the mastership of midwifery and to the founding of the Register of Medical Auxiliaries. Dr. Hayes paid a tribute to Dr. Cecil Wall as the archivist of the Society.

Reform of the Curriculum

The Junior Warden, Mr. T. B. LAYTON, proposing "The Guests," said that there was one subject of interest to them all—namely, the medical curriculum—and all would agree that this needed revision. Some six years ago a conference was held under the guidance of three of their Honorary Freemen on the curriculum, and it was soon agreed that this was seriously overloaded. A report had been produced which went the way of most "blue books." He had long pondered over this report, and had concluded that "some large subject" should be transferred from the students' curriculum into the graduate period of medical education. He proposed that the subject should be obstetrics. This was a revolutionary idea, but he hoped that they would give it serious consideration. He coupled the toast with the names of Dr. E. H. T. Nash, President of the Society of Medical Officers of Health, and Dr. Adolphe Abrahams, Dean of the Medical School attached to Westminster Hospital.

In reply Dr. NASH said that in ten years' time there would, in his opinion, be a great change in the relations between the public health service and the general practitioner and specialist. He felt that the general practitioner was being left out more and more in deliberations at the centre. He deeply deplored this. Dr. ABRAHAMS replied in a characteristically witty speech in which he said that the Deans of the Medical Schools look upon the Yeomanry Dinner "as one of our best perquisites." Referring to "a dithering of deans," he said that this was about the only chance they had of meeting each other.

E. Massobrio and A. Appiano (*Minerva med.*, 1938, **29**, 368), who record three cases of pernicious anaemia in patients aged 61, 72, and 59, state that clinically psychoses arising in the course of pernicious anaemia are prone to considerable variation. They agree with other writers who hold that there is nothing characteristic in these mental syndromes. In all three cases complete disappearance of the psychoses—which had led to the patients being sent to an asylum—followed the administration of raw liver by mouth and the intramuscular injection of liver extract.

Nova et Vetera

THE JUBILEE OF THE "BRITISH JOURNAL OF DERMATOLOGY"

This periodical appeared for the first time in November, 1888, under the joint editorship of Malcolm Morris (afterwards knighted) and H. G. Brooke, and celebrates its jubilee with a special number of historical interest. Many readers will be glad to see in this jubilee number a photograph of Mr. H. L. Jackson, who has now himself been fifty years with Messrs. H. K. Lewis, the firm which publishes the *British Journal of Dermatology*. At the time of its foundation there were but few special medical journals in England. The doyen of such publications is the *British Journal of Ophthalmology*, which first appeared in 1882 under the name of the *Ophthalmic Review*, and was followed in 1887 by the *Journal of Laryngology*. The *British Journal of Dermatology* was a good many years junior to the corresponding publications both on the Continent and in America. It is rather remarkable that although the foundations of modern dermatology were laid in London at the beginning of the nineteenth century by the exertions of Robert Willan and Bateman, there was no special society devoted to its study in this country until 1882, when the Dermatological Society of London was founded by Stowers and Sangster, who were the first two joint secretaries. During the first six years of that society's existence there was no periodical specially devoted to diseases of the skin, and the general medical journals only gave a very scanty and grudging hospitality to the subject.

During the first years of the existence of the *British Journal of Dermatology* the chief objective was the morphological differentiation of the multifarious diseases of the skin and accuracy in their diagnosis. In a very large number of cases the practical problem before the dermatologists was the question whether the eruption was syphilitic or not. Although long before the era of the Wassermann reaction and the demonstration of the *Spirochaeta pallida* in the dark-ground field, that generation of physicians became extremely proficient in making the correct diagnosis. Later on the advance of pathology contributed a great deal to elucidating the problems of skin disease. The bacteriologists demonstrated the aetiology of the common septic diseases, while the mycologists showed that not only were the recognized forms of ringworm but also many other inflammatory conditions of the skin formerly relegated to the vast and amorphous collection known as "eczema" really due to pathogenic fungi. In this connexion the work of Colcott Fox, Adamson, and Whitfield has been outstanding. Fifty years ago cutaneous therapeutics were by no means powerful.

A Mirror of Therapeutic Progress

Most of the advances in the treatment of skin diseases have come from outside. It has been the privilege of dermatologists to grasp and adapt the weapons provided for them by the physicists and chemists. In 1900 Queen Alexandra gave the first Finsen lamp to the London Hospital, and under Dr. Sequeira a famous and successful dermatological department was developed. Almost simultaneously Freund and Schiff began to use *x* rays therapeutically, and their methods were soon studied and extended in British hospitals. It was about this time too that radium first made its appearance on the therapeutic

scene. A pioneer paper on this subject appeared in the *British Journal of Dermatology* by Louis Wickham of Paris in 1906. A little later the chemists began to contribute a series of powerful therapeutic compounds, the first of which was salvarsan—the famous 606—the dramatic effects of which will never be forgotten by those who were witnesses of its introduction into medicine. Later they demonstrated the therapeutic qualities of gold, and still more recently they have given us sulphonamide and its modifications. Perhaps the most important contribution to dermatological therapeutics emanating entirely within the medical profession has been the treatment of varicose and traumatic ulcers of the legs by means of adherent elastic bandages, which we owe to Dickson Wright. This method has relieved, and indeed cured, many thousands of sufferers from one of the most distressing and disabling of all non-fatal complaints. All these advances may be traced within the columns of the journal whose jubilee we are now celebrating.

One of the landmarks of the progress of dermatology in this country was the formation of the London School of Dermatology at St. John's Hospital in 1923. It is a remarkable fact that Stowers, who in 1882 had been successful in forming the Dermatological Society of London, and in 1894 the Dermatological Society of Great Britain and Ireland, which did not confine its membership to specialists but admitted all interested in skin diseases, was again the prime mover in the formation of the London School of Dermatology. In accomplishing this task he had great difficulties to overcome, and only great tact and perseverance brought success to his efforts. The formation of the school was celebrated by a dinner given to Stowers on October 10, 1923. The Jubilee Number before us will be found extremely interesting by all those who are connected with the study of the progress of dermatology, and we venture to think it also appeals to the wider medical public. It is embellished by portraits of the dermatological heroes of the epoch.

Reports of Societies

PSYCHOLOGICAL FACTORS IN PHYSIOTHERAPY

In the Section of Physical Medicine of the Royal Society of Medicine on November 18, Dr. COLLIS HALLOWES presiding, a discussion was held on psychological factors in physiotherapy.

Dr. H. CRICHTON-MILLER said that a compromise attitude towards disability—the conscious wish to be well associated with the unconscious wish to be ill—was commoner among patients than was usually supposed. There were two fallacies to be avoided: one that the will to be ill was equated with malingering; the other that the will to be ill was based on rational considerations. Physiotherapists were specially interested in this subject because physical treatments tended to be long and expensive, and therefore the more to be desired by patients of a certain psychological make-up. There were patients who pursued an interminable course of physical treatments from motives other than a desire for cure. It might not have occurred to the physiotherapist that the patient whose fibrositis was so resistant to treatment was for some obscure reason anxious to continue his or her visits. The unconscious gratification derived from the treatment might be stronger than the desire to be well. The cost of treatment was not necessarily a deterrent. The discontented menopausal wife of the affluent man found a satisfaction in exacting from her spouse the doctor's fees. Even when the treatment, such as electrical treatment, induced pain, it was possible that to the patient a form of torture had a hidden and morbid fascination. There were patients, especially females, who "enjoyed" painful symptoms, and to whom cure was an unwelcome discontinuance of pain. Chief among these were the hypochondriacs. The essence of hypochondria was a compulsive expiation. The original factor was repressed guilt which called for absolution or expiation, and made any form of suffering, such as insomnia or pruritus, to be desired.

A familiar patient was the one who had had to endure scepticism on the part of his family or his doctor. Such a patient sought vindication, and exulted when a specialist gave the opinion that an operation was necessary. The inevitable spectacular character of some forms of physiotherapy gave patients a comfortable feeling that their complaints were shown to be valid and their family's scepticism was rebuked. Thus the popularity of physiotherapy might sometimes be based on considerations of this kind, and depend more on personal prestige than on therapeutic value. The seekers after Christian Science and spiritual healing were often really in search of cure by magic. Not that these cults, whether orthodox or heterodox, all partook of magic; many of them were analogous to good psychotherapy, but the patient attracted to such forms of cure craved for that superiority which was associated with initiation into any obscurantist cult. Dr. Crichton-Miller also reminded the physiotherapists of a psychological difficulty among themselves. Every specialist in a sense had an unconscious bias towards his own department, and in the case of physiotherapy there might be an equally unconscious bias owing to vested interest in equipment, though it was far from his mind to suggest that the physiotherapist tended to become a panaceamonger, only that the specialism was rather more liable than others to that unconscious bias which tended to warp diagnostic discrimination.

Psychology of the Cripple

Dr. R. G. GORDON described possible reactions of the cripple to his condition. A very common reaction, though perhaps not so common as it used to be, was resentment against society and a development, as a compensation to the disability, of a spirit of aggressiveness. It was to be found in Shakespeare's conception of the hunchback Richard III:

> "Deform'd, unfinished, sent before my time
> Into this breathing world, scarce half made up,
> And that so lamely and unfashionable
> That dogs bark at me as I halt by them.
> . . . since I cannot prove a lover . . .
> I am determined to prove a villain."

It was probable that something of the psychology of Kaiser Wilhelm II depended on his crippledom from birth paralysis. The physiotherapist if confronted with this aggressive attitude must try to make his patient see that he had to adjust himself to his crippledom, and that it was to his advantage to modify his resentment. Then there was the cripple who was in a chronic state of irritability because of pain; the more irritability he exhibited the more sensitive his nervous system became, and thus a vicious circle was established. Other patients accepted their disability in a state of apathy, and again a psychological approach was necessary, with re-education for social life; some sank into extreme despair, and suicide became a possibility. Dr. Gordon believed that the normally constituted person did not commit suicide; suicide was proof of a psychopathic mentality. Finally, there was the desirable attitude towards the crippled state, such as was exemplified by President Franklin Roosevelt, who not only exhibited determination to overcome the disability, but had shown, especially in recent events, his sympathy for and desire to help the unfortunate. Each patient must be taken as a separate problem. Some sort of occupation in which a use could be found for the disabled limbs was desired. The physiotherapist also should

learn with which patients, and at what stage of their treatment, he himself could in a measure fade out of the picture. Sometimes the change over to a less impressive person than oneself, provided one kept the psychological elements of the case in mind, was desirable.

General Discussion

Dr. J. B. MENNELL took up a reference by Dr. Crichton-Miller to "railway spine." He had been taught to believe that this was a psychological entity, but since he came to know something about differential diagnosis he had changed his opinion and was now convinced that there was often a definite physical lesion, and that so long as this was untreated the psychological lesion would persist. Dr. C. B. HEALD remarked that he had been puzzled occasionally by finding that a treatment which he had adopted more or less in despair did good when it had no business to do good. What was the explanation? Dr. WILFRID EDGECOMBE referred to a certain class of patients at spas, not hypochondriacs but commonly called neurasthenics, whose sole occupation was their health. Was it well to rob these people of their one interest in life? Dr. DRURY PENNINGTON asked how the "obsession" of the specialist for his specialism was to be overcome. Dr. P. P. DALTON mentioned the profound effect of the mind on rheumatic disease. He had recently seen a patient in whom some readjustment of her family life had led to immediate clearing up of deformed finger-joints. Dr. G. D. KERSLEY spoke of the association of gout with worry. Dr. DAWSON, taking up the question of self-murder, said that he had seen at a seamen's hospital Chinese patients in whom clinically no disease at all could be discovered, yet within three days they were dead. Was it an example of the will to die? Dr. KERR RUSSELL spoke of the reactions of the physiotherapist to the fact that in his specialty, unlike most others, there were large numbers of unqualified people doing practically the same work. Dr. C. W. BUCKLEY said that no single cause accounted for rheumatoid arthritis. Here was an agent of low virulence which in the ordinary individual produced no ill effects, but constitutional factors, type of musculature, the stance, and various matters of that kind came in. Dr. W. YEOMAN mentioned patients in whom acute gout was apparently induced by worry, also a patient who had had two attacks of generalized psoriasis, the first during the war, when he was extremely worried, and the other during the recent crisis. The PRESIDENT said that many people who undertook physical treatment only did so in the last resort when they were already in a state of chronic invalidism. Had they come earlier physical treatment might have done them good much more rapidly.

Dr. CRICHTON-MILLER, in replying, said that he was not prepared to admit with Dr. Gordon that all suicides were of unsound mind. There were people who took their own lives who could not be considered unsound. A great deal could be said about spontaneous death amongst Orientals, but there was no doubt that the will to be ill, the will to recover, and the will to die were factors to be taken into consideration. As for "railway spine," he agreed that there were some cases which no amount of compensation would clear up until the physiotherapist had treated them, but there were others which no amount of treatment would improve until the compensation question had been adjusted.

THE PSYCHIATRIST AND THE CRIMINAL LAW

A joint meeting of the Medico-Legal Society and the Section of Psychiatry of the Royal Society of Medicine was held on November 24, His Honour Judge Earengey presiding. The subject of discussion was "The Place of the Psychiatrist in Relation to the Administration of the Criminal Law."

Dr. R. D. GILLESPIE, in opening, discussed the place of the psychiatrist in magistrates' courts. The magistrate apparently, in dealing with a number of charged persons—most of them probably first offenders—had no means of knowing about their state of mind unless the offender appeared obviously ill or had been reported by a police official as suspected of mental disease. There were precedents for a better system in some courts of the United States, to which a psychiatrist was permanently attached with the duty of examining the offenders psychiatrically, especially after conviction and before sentence. The mere appearance of a prisoner for a few minutes in the dock was an impossible situation from which to single out the individual who was a psychiatric problem, and a night or two in the cells afforded only a slightly better basis for observation. A psychiatric report could be both brief and simple and a useful guide to a magistrate wishing to impose as appropriate a form of sentence as it might be in his power to give. It had been suggested that there should be legislation to obtain a routine psychiatric examination of certain classes of offenders—for example, sex offenders. Except in so far as it might be useful to have legislation of this kind introduced in the hope of obtaining wider facilities later, Dr. Gillespie said that he would prefer to see wider powers given so that convicted persons might receive sentences founded on a survey which at least included the psychiatric aspect.

The M'Naghten Rules

Later in his remarks Dr. Gillespie addressed himself to the M'Naghten rules. That judges themselves found the rules unwieldy and unreal was, he said, shown by the way in which they appeared to refrain from applying them. But so long as the rules remained in force it seemed to be the duty of psychiatrists to interpret them literally, and not to strain their conscience and distort their use of language in order to try to achieve an impossible task—that of moulding this abstract and unreal formula to actual knowledge. Otherwise they would bring psychiatry into disrepute and would not, in the long run, help the mentally ill. It must remain for the legal machinery to see that no ultimate injustice was done. As a matter of fact, it must only rarely happen that there was any fundamental difference of opinion between the psychiatrists who appeared for the prisoner and the prison medical officer who appeared for the Crown. A joint report would often be possible, or, if that was not legally desirable, separate reports could be submitted beforehand, and the psychiatric witnesses examined and cross-examined on them. If this were coupled with judicial recognition of the fact that the dividing line between sanity and insanity was not sharp, and that there were in consequence degrees and indeed kinds of responsibility, the position would rest more certainly upon the facts, including the psychiatric facts, rather than upon a formula.

Mr. ROLAND BURROWS, K.C., Recorder of Cambridge, said that in his view the answer to the problem set for discussion was implicit in the very form of words setting out the subject-matter. The place of the psychiatrist must be assistant and not dominant. By a psychiatrist he meant a person trained in medical knowledge who was specially interested in the abnormal working of the mind—mainly, if not entirely, in such abnormalities as were the result of mental disease. By the criminal law he understood the body of rules of conduct compliance with which was insisted upon by the State on pain of punishment. The content of that body of rules was a matter for the State to determine. The object of criminal proceedings was primarily to ascertain whether the accused was proved to be guilty or not. Underlying this was the principle that organized society must insist upon a standard of conduct to which members had to be made to conform. The object of medical treatment, on the other hand, was the prevention, cure, or alleviation of some bodily ailment.

In Mr. Burrows's view the M'Naghten rules had stood criticism and would continue to stand it for many years to come. They could be readily understood and applied by persons who gave their minds to the subject. Some members of the medical profession, faced with people suffering from mental trouble, committed themselves to a definition of insanity which would prevent anyone from

being classed as sane. They suggested that they were prepared to let anybody off the consequences of crime. By the very nature of their profession medical men when on the bench made very bad justices. His experience of medical men, with one conspicuous exception, was that they were quite incapable of weighing evidence. Their practice disabled them from taking a dispassionate view. The rules of evidence which lawyers followed were totally disregarded by doctors. Medical men suffered from a not wholly unfounded fear that they might find themselves defendants in proceedings. In his own jurisdiction he had found gross cases where persons had been before him for criminal offences, and on listening to their history he had gathered that they had been released from an institution in circumstances "in which I, an untrained layman in medical matters, would have bet any sum of money that they would commit a criminal offence after their release."

Mr. Burrows added that in the case of some unfortunate individuals he had been forced to impose sentences of imprisonment when in his opinion they ought to have been remanded to some place where they could receive mental treatment. But he had reflected that in prison they would at least have a roof over their heads, food and occupation, and medical men to supervise them. That was better than sending them out into the street.

Dr. DENIS CARROLL said that it would be of great value to administrators of the law if psychiatrists would undertake a research into groups of delinquents and the appropriate methods for dealing with them. Until comparatively recently the role of the psychiatrist was almost entirely restricted to the question of insanity and criminal responsibility, but in view of recent advances in psychiatry a court would be grossly neglecting valuable assistance if it refused to regard the psychiatrist in any role save that of an alienist. The psychiatrist might afford information which would materially affect the magistrate's view as to the usefulness or otherwise of punishment for a particular offender. That the final decision lay with the court and not with the expert on behaviour was an advantage, because it meant that the protection of the public would not be lost sight of in considering the interests of the misdoer.

Mentally Abnormal Cases in the Courts

Dr. LETITIA FAIRFIELD said that the function of the psychiatrist was to assist the court in its duty of fixing responsibility and also to advise on the disposal of the person charged. It was not the duty of the court *prima facie* to inquire into the mental state of anyone who came before it, but only to find out if a crime had been committed and the responsibility of the person charged. To attack the M'Naghten rules was like hitting a child! The only reason why they were continued in existence was that no one in the courts paid any attention to them. It was an amusing study in the art of compromise to go through the judgments of the courts during the last fifty years with regard to mental disease and capital punishment. As regards mental disease the courts were deplorable in theory, but in practice there was little ground for criticism except in dealing with some of the minor offences. In the case of certain offences such a large proportion of the offenders turned out to be mentally abnormal that on the ground of common sense and economy the courts would be justified in employing a psychiatrist before verdict and sentence. The chief of these offences were the sex category, but they included also arson, and what were known as "poison pen" cases.

She had great sympathy with the desire of the lawyer to be master in his own house, but she reminded him that his original function was to protect the prisoner from injured parties or relatives, whose vengeance was likely to be more severe than that of the law, also from the priest, and nowadays from the schoolmaster, and in certain cases and countries from the politician. The psychiatrist had been badly handicapped because by force of circumstances he was so often employed by the prisoner and was not an official appointed to advise the court. She would welcome the official psychiatrist, not because she favoured the bureaucratic practice of medicine, but because the psychiatrist who was acting as the servant of the court had a very considerable advantage.

Dr. H. CRICHTON-MILLER, in summing up the discussion, said that apparently the two professions were going to quarrel over the M'Naghten rules for ever. The rules were only a narrow gate through which the legal profession might pass, in the eyes of their medical colleagues, into light and salvation. None of the medical speakers had claimed that the psychiatrist should have a dominant position in the courts; he would be there in the position of assistant to the magistrate or of assessor, and he hoped that the new legislation would make it possible for him oftener to fill that role. Mr. Burrows had been very emphatic that the services of medical men should be restricted to suffering humanity. "Some of us think that humanity is apt to suffer by the slight myopia of some magistrates on certain occasions, and therefore with clear conscience we do what we can to correct these errors of refraction."

IMMUNITY IN INFLUENZA

At a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on November 25, Dr. J. A. H. BRINCKER presiding, a paper on "Immunity in Influenza: the Bearing of Recent Research Work" was read by Dr. C. H. ANDREWES.

Dr. Andrewes began with the assumption, which he believed to be true, that epidemic influenza was caused by a filterable virus. The term "influenza" was used to cover a variety of conditions, and it was difficult to find any precise clinical criterion as to what epidemic influenza was and was not. Experimental animals which were susceptible to infection had been found and the formidable task attempted of trying to find out whether there was any correlation between the presence or absence of a virus pathogenic for ferrets and mice and any particular clinical diagnostic feature of the infection in human beings. On the whole a virus which would infect ferrets had not been obtained from minor outbreaks occurring in years when there was no general prevalence of influenza. On the other hand, in the widespread epidemics of 1933 and 1937 it had been possible to obtain such a virus from a large proportion of the outbreaks. The cases had been divided into those of epidemic influenza and those of other febrile catarrhs; in other words, the "scrap-heap" of influenza had been taken and an attempt made to differentiate one single item as "epidemic influenza." It had not been possible as yet to say by examination of patients that one had epidemic influenza and another had not, but it had been discovered that there were certain features which distinguished one group from another. For example, the cases from which virus had been recovered had mostly an abrupt onset; it was exceptional in such cases to find a history of several days' catarrh. In true epidemic influenza constitutional symptoms had prevailed over catarrhal symptoms, there was much more malaise and aching in the limbs, and comparatively little coryza. But in the last outbreak, 1936–7, two of the features generally regarded as characteristic of influenza were not present: there was no particular tendency to protracted convalescence and the so-called post-influenzal depression, and no particular tendency to leucopenia, most of the white cell counts being within normal limits.

This point needed emphasis. It was very important in trying to appreciate how long was the immunity of man to influenza to realize that one could not rely on statements from a clinical point of view that this or that patient suffered from two attacks of influenza within, say, three months unless there was evidence that both attacks were certainly due to the virus. This could not even be said about successive outbreaks in an institution. A very

widespread outbreak which seemed to be influenza might not be influenza. It seemed reasonable to suppose that certain epidemics were caused by something, perhaps a virus, other than the virus of epidemic influenza which affected ferrets and mice. There seemed to be different serological races of the virus. Had the ferret been the only animal susceptible to infection the suspicion that there was more than one race of virus might never have arisen. It was only after it became possible to produce the disease in mice that a neutralization test in mice on a quantitative basis could be used and different serological races determined.

Relation of 1918 Pandemic to Later Outbreaks

After a brief discussion of the characteristics of the different influenza strains and the complication produced by cross-tests amongst different strains, Dr. Andrewes went on to consider the relationship of the pandemic of 1918–19 to the less serious outbreaks which had occurred in recent years. It was not certain that the 1918 pandemic was due to the influenza virus which had been recovered more recently. A suggestion made in several quarters was that the 1918 brand of influenza might have been preserved for posterity in pigs. In August, 1918, swine influenza broke out in the Middle West of the United States, where apparently it had never been recognized before, and it had occurred annually ever since. It had been suggested that here might be the virus concerned in the 1918–19 pandemic. It was related to the human influenza strain, but much more remotely than the human strains were related to one another. The theory had been advanced that pigs fed on garbage from certain institutions developed in their serum antibodies active against human influenza, but not against swine influenza. One of the strong arguments in favour of the suggestion that swine influenza might in the past have infected man was the finding that in adults and in children over 10 antibodies to swine influenza were commonly present in the serum, opening up the possibility that the virus had been prevalent in the past, causing the presence of antibodies, but had disappeared in comparatively recent years, so that it did not affect the younger children. But it was known that repeated inoculation of an animal with any strain of influenza would broaden the zone of reactivity of its serum so that it would react with strains other than the one with which it was infected, and evidence that this might happen with human serum had been provided by certain studies.

It had been found that, so far as could be made out, the island of St. Helena was the only place in the world which certainly escaped the 1918 pandemic. Serum from a number of the inhabitants who had been in the island since before 1918 was obtained, and it was found that although there were some antibodies against swine influenza, these were very few as compared with the findings with adult serum in England, America, and elsewhere. Fortunately—from the research point of view—influenza was brought to St. Helena from the Cape of Good Hope in 1936, and afterwards an examination of the serum of certain of the inhabitants showed that they had developed very good antibodies against the human virus as well as against the swine virus. Thus it appeared that antibodies to swine influenza could appear in human serum as a result of infection with human strains. Altogether it seemed probable, from what was known about the biological instability of viruses in general and the influenza virus in particular, that the pandemic of 1918–19 might have been due to some mutation occurring in the influenza virus. Such a mutation might have taken place in one of two ways or in both. It might have concerned an antigenic change in the virus, which would explain why the immunity of the population was so low, and it might also have concerned the increased tendency of the 1918 virus to attack the lungs. In the ferret two strains of influenza virus had been evolved from one original virus, one of them hardly attacking the lung at all, and the other attacking the lung and causing a fatal pneumonia with very considerable regularity. Thus it was reasonable to suppose that a change might have taken place in the influenza virus to explain such events as happened in 1918, and such a virus might have associated itself much more readily with ordinary pathogenic bacteria than did the usual strains.

Vaccination of Human Beings

Dr. Andrewes went on to discuss certain difficulties or points of doubt in planning the vaccination of human beings. First of all, the workers were still open to conviction as to whether they were trying to do the right thing in vaccinating and producing an active immunity. Might there not be mutations of virus which were more important in bringing about an epidemic than had been realized as yet? No enormous amounts of vaccine could be made; the vaccine was made from filtrates of mouse lung, and was difficult to produce on a large scale. It was necessary to select a likely section of population, carry out vaccination, and await an epidemic to prove the value or otherwise of the procedure. It was not known whether the production of a rise in antibodies in man was a good guide to the immunity induced by a vaccine. It had been found in ferrets that there was a very good correlation between active immunity and the amount of antibodies in the serum so long as the work continued with a single strain of the virus, but if cross-tests were carried out between strains or between human influenza and swine influenza the results were discordant.

Another problem was whether living virus or killed virus ought to be used. Stokes and his colleagues in America had used living virus with impunity, and had obtained apparently a threefold reduction in the incidence of febrile infections in the vaccinated people as opposed to the controls. But he felt on this subject that as the killed virus would experimentally immunize animals it ought to be given every chance before the more hazardous procedure of using live virus was attempted. At the same time, the possibilities of using an attenuated virus must be explored, because in a severe epidemic such a virus might be more economical and also more rapid in its results. As to the source of virus in making a vaccination, tissue culture virus was more satisfactory in theory than virus made from mouse lung, but, unfortunately, none of the tissue culture virus seemed to reach such a high titre. In theory, again, one would use a mixed strain containing the different antigenic components in fairly equal proportions, but in practice the mixed strains employed had been of very low titre. The only strain which was really potent and virulent was a highly specific one. What was being done in experiments taking place at the moment was to combine a highly specific and virulent W.S. strain with another which was not so virulent but a good deal more polyvalent.

As to when to vaccinate, since 1929 epidemics had come along very regularly every four years, but the same periodicity had not been shown on the Continent as in England. On the question of frequency, it was not hoped to get a very durable immunity from vaccination, and therefore, to be certain of producing an effect, it would be wise to vaccinate every year.

SIGNIFICANCE OF DREAMS

At a meeting of the Medical Society of Individual Psychology on November 10, with Dr. H. C. SQUIRES in the chair, Dr. EDWARD A. BENNET read a paper on the significance of dreams.

Dr. Bennet said that the dream as a mode of mental activity within the experience of all had an immediate significance for psychologists. But this significance was enhanced when it was found that the dream contained information which could be incorporated into conscious

life and could assist the psychoneurotic patient to understand his illness. The limitations upon observation and recording excluded the use of the scientific method in the study of dreams. Their significance could only be seen when the concept of the unconscious was introduced. Emphasis was laid upon the view advocated by Jung—that the unconscious was the natural background of the mind. The dream was not the road to the unconscious, it was the unconscious. The aim of dream analysis and of psychotherapy was to remove the restrictions imposed by unnaturalness and artificiality. The dream, as the natural mind, could provide exactly the material required for adjustment and hence for optimum efficiency.

Many made the mistake of studying the dream as though it were an extension of conscious thinking. But the dream was rather a picturesque paraphrase of something new. Each incident in it could be thought of as causally connected with what went before. A series of dreams might be coherent and could provide not a commentary upon, but an important addition to, conscious life. When this information was assimilated the patient could take over responsibility for his life with understanding. Patients could be trained to work at their dreams in their own time and not only during the analytical session. Thus the duration of treatment could be shortened. The conflict in psychoneurotic illness was between two "goods" (using the word "good" in its philosophical sense). Hence the difficulty many had in reconciling their nature and its possibilities with that which training had commended. Dreams would show clearly how such a situation could be met.

General Discussion

Dr. CRICHTON-MILLER emphasized the point made by Dr. Bennet that analysis of his own dreams was the only means by which the analyst could keep himself sensitive to the significance of his patients' dreams. Referring to persons said to be dreamless, he described the case of a young soldier who claimed never to have dreamed and also never to have wakened with a dry bed in his life. This patient was a hypopituitary type, and after the administration of thyroid his enuresis was almost completely cured and he experienced dreams for the first time. Dr. Crichton-Miller ventured to amplify Dr. Bennet's emphatic assertion of the basic truth that we are primarily creatures. He said that the real trouble began for us when we realized that we were both creatures and creators, and that it was the incompatibility of these two aspects of life that rendered the art of living so difficult.

He went on to review the position of dream interpretation in all mental analysis. He pointed out that while dream interpretation had been described as the royal road to the unconscious, it was not the first road that had been tried, nor could it be described as the only road. Before dream interpretation was attempted, Freud had laid bare the unconscious motive through hypnotism, and to-day the Freudians regarded analysis of the transference as the most important aspect of analysis. Dr. Crichton-Miller went on to say that chemically induced narcosis in some cases served a most useful purpose, and that probably evipan or similar drugs would have a considerable vogue in mental analysis in the future.

Dr. JOHN MACKWOOD said that it was difficult to separate the dream from the sleep of the dreamer. Just as the waking life had need of sleep to restore its physical energy, so had the psychical life the need of dreams to amplify its significance. The individual owed his existence to the species, but the species owed its persistence to the individual; the two were, in fact, inseparable. Various levels of sleep were necessary to restore and maintain the balance of the physical and psychical life. The deepest levels made contact with the phylogenetic origins of the species, before the dawn of consciousness; dreams from this level were mere organic gestures.

The higher levels were those of the ontogenetic unconscious of the individual. Dreams at this level were comparable to analogies which had significance for all the levels of the individual psyche, if we could interpret them. Out of the dreams came synthesis. Inasmuch as any symbolization could only be interpreted for a few of the levels, he doubted if one did much more than scratch the surface by any analysis. The experience of the dream was, in itself, a synthesis. Kent defined experience as a "synthesis of the perceptions—a synthesis which is not itself contained in perception . . . in experience our perceptions come together contingently." In the dream with affect, the affective part of perception came together contingently with that part of perception which marked an object for future action. The synthesis which took place inaugurated new forms of movement in behaviour.

Local News

ENGLAND AND WALES

Hospital Contributory Schemes

The annual conference of the British Hospitals Contributory Schemes Association was held at Liverpool on November 24, 25, and 26. The principal speaker on the first day was Lord Horder, who said that contributory schemes gave hope of new life and activity to voluntary hospitals. Payment of the full cost of maintenance of the patient should be the aim of such schemes, but whether any payment should be made to the doctor out of the funds before that aim was reached was a moot point. At present the doctor's claim was being waived, but the generosity of the profession should not be too long abused. The speakers on the second day included Professor Henry Cohen of Liverpool University, who said that the position of the young consultant was much affected by contributory schemes. If he was denied opportunities because people beyond a certain income limit were admitted to these schemes, his earlier years might be a bitter struggle. Mr. S. Clayton Fryers, house-governor of Leeds General Infirmary, speaking of contributory schemes from the hospitals' point of view, considered that payment to medical staffs should be a matter for agreement between the hospital and its staff and should not be the concern of contributory schemes. It should be a direct lump-sum payment and not a percentage of moneys received from any class of contributors. Dr. J. M. Mackintosh said that in hospital development space must be found for the promotion of convalescent treatment. There must be increased provision for research and for greater elaboration of treatment. He urged the need for co-operative arrangement with local authorities in respect of patients who made no contribution. So long as treatment was not free and universal there must, he said, be some system of charge.

Royal Dental Hospital of London

The annual dinner of the staff and past and present students of the Royal Dental Hospital of London was held on November 26 under the chairmanship of Dr. F. C. Porter. In proposing the health of the hospital and the dental school, Dr. Porter spoke of his pleasure at revisiting his old school at the annual clinical "at home" which had been held earlier in the day, and he contrasted with some envy the space and equipment available to staff and students to-day with the limitations within which an earlier generation had to be accommodated. There were two things, he said, which they all desired for the dental profession—that it should receive due appreciation from the community, and that it should be worthy of such appreciation. In his response the Dean (Mr. H. Stobie) referred to the loss which the institution had suffered

during the year in the resignation of Dr. A. W. Oxford from the chairmanship; the hospital owed him a great debt for the outstanding position it now occupied. They also mourned the death of Mr. W. H. Dolamore, to whom it was due that the school became a school of the University of London. A friend of Mr. Dolamore had furnished a sum of money to establish a prize in his memory. Mr. Stobie also mentioned other events of the school year, and added that the number of students was satisfactory and the results of examinations were well up to the average. The toast of "The Visitors" was proposed by Mr. A. T. Pitts, who offered a special welcome to Mr. Hugh Lett, President of the Royal College of Surgeons, with which institution dentistry had a very close association. It was in 1860 that the College established the qualification which was held by the majority of dental surgeons. Great interest had been aroused in the proposal of the Council of the College to grant a higher diploma in dentistry, and it was with disappointment that they learned later that there were technical difficulties in the way. No body was more appropriate than the College for the granting of such a qualification, and it was hoped that the setback would be only temporary. Mr. Hugh Lett made a brief response, expressing his pleasure at being present as representing the College in view of its close connexion with dental qualification. He said that Mr. Pitts had touched upon a very important matter in mentioning the higher diploma. He could only say that the Council of the College was in sympathy with any suggestion made for the progress of dental surgery. He congratulated the hospital on the position it had attained. Mr. T. A. Coysh proposed the health of "The Chairman," and a very pleasant evening concluded.

The hospital and school presented a very busy appearance in the afternoon on the occasion of the clinical "at home." A routine operating session was held by Mr. S. A. Riddett at the adjacent Charing Cross Hospital. Mr. D. G. Walker and Mr. H. L. Hardwick gave brief lectures on the causation and treatment of haemorrhage following extraction and on the treatment of periodontal disease respectively; Miss K. C. Smyth and others showed orthodontic cases of interest; Dr. R. H. Leaver demonstrated some cases recently treated in the electrotherapeutic department, and there were exhibitions of skiagrams, photomicrographs, specimens of anatomical and pathological interest, and models of denture technique.

Joint Tuberculosis Council

The November meeting of the Joint Tuberculosis Council was held in London at the rooms of the Society of Medical Officers of Health. The chairman, Dr. S. Vere Pearson (Mundesley), referred to the great loss sustained through the deaths of Dr. L. S. T. Burrell and Dr. Jane Walker, both of whom had rendered valuable service to the Council almost since its inception. A welcome to the Council was given to Dr. R. A. Young, who was elected by the National Association in place of Professor Lyle Cummins, recently resigned. A request from the secretary of the Tuberculosis Society of Scotland for representation was acceded to. Dr. G. Lissant Cox was able to report on a successful interview with the Ministry of Health regarding the republication of Memorandum 131/T. The Council was informed that an entirely new memorandum would be drawn up at the Ministry, and that it would have a further opportunity of considering the memorandum in its final form. A brief account was given of the interview which Dr. Lissant Cox, Dr. Esther Carling, and the hon. secretary (Dr. J. B. McDougall) had with the Interdepartmental Committee on Nursing Services. Considerable discussion centred round future policy on postgraduate courses. Dr. F. Heaf, who has taken over temporarily during the absence of Dr. Brand the offices of convener of these classes, reported on the success of the two most recent efforts—at Brompton Hospital and at Heatherwood Hospital. There was a general feeling that the Council's past record in postgraduate work must be maintained, and Dr. Heaf was asked to continue the organization of the classes until such time as Dr. Brand had recovered from his illness. During 1939 some attention will no doubt be given to postgraduate classes on tuberculosis for general practitioners, and it is hoped that a schedule will be available early in the New Year. Dr. C. O. Hawthorne brought to the notice of the Council his concern as to certain provisions in the Milk Bill now before Parliament. In his view medical opinion had been to a large extent disregarded, and after some discussion he proposed that the Milk Committee be authorized to prepare a memorandum in keeping with the past policy of the Council—as previously minuted—and that this memorandum be circulated to Members of Parliament. To this the Council agreed unanimously. A motion was tabled dealing with closer co-operation between organizations interested in tuberculosis, and Dr. R. A. Young expressed himself as being in hearty agreement with it. Professor W. W. Jameson suggested that the following resolution should be put to the Council:

"That the time has come when the relationship of the National Association for the Prevention of Tuberculosis, the Joint Tuberculosis Council, and the Tuberculosis Association to one another should be discussed, and that the Joint Tuberculosis Council will be glad to appoint representatives to meet members of the other two bodies for this purpose."

Support for this was forthcoming from Drs. Ernest Ward and Heaf, and Dr. Jessel, while agreeing with the wording, emphasized the importance of the Council preserving its identity. It was resolved that the motion be agreed to, and that the Chairman, Dr. Ward, Professor Jameson, the hon. treasurer and secretary be representatives of the Joint Tuberculosis Council in such discussions as may take place. A subcommittee had prepared a list of subjects which might be suitable for the Council for investigation. After an interesting discussion it was decided to investigate immediately "The Tuberculosis Service in Time of National Emergency" and "Whether the Use of Books in Public Libraries is a Source of Infection." Dr. James Watt (Godalming) and Professor Tytler (Wales) were appointed conveners of the two committees appointed to report.

Postgraduate Instruction in Obstetrics

The London County Council has approved a scheme for the provision, at its general hospitals, of postgraduate courses in obstetrics designed to enable general practitioners to learn the latest developments in that branch of their profession. The scheme provides for six weekly lectures, each of about one hour's duration, to be given by consultant obstetricians, six attendances at ante-natal clinics at a general hospital served by one of the consultant lecturers, and six ward rounds. The series of six lectures will be given twice a year, once at a centre north of the Thames and once at a centre south. Each practitioner attending the course will be required to pay two guineas registration fee, and it is proposed that the consultant obstetricians concerned should be paid at the rate of two guineas for each lecture.

Welsh Temple of Peace and Health

The Temple of Peace and Health built by Lord Davies at a cost of £62,000 on a site presented by the Cardiff Corporation in Cathays Park, Cardiff, was opened on November 23. The temple, of which the foundation stone was laid by Viscount Halifax last year, is a fine T-shaped building constructed in the Classic style from the designs of Mr. Percy Thomas. It stands in the Civic Centre. One of the wings will house the administrative headquarters of the Welsh National Council of the League of Nations Union, and the other the King Edward VII Welsh National Memorial Association for the prevention and treatment of tuberculosis in Wales. In a short oration Viscount Cecil said they were there to inaugurate a new centre of effort from which he hoped would radiate all over the world a new impulse for the two great causes of peace and health.

Fracture Cases at L.C.C. Hospital

The report of the London County Council's Hospitals Committee, made to the Council on November 29, contains an extract from the article by Mr. John C. Nicholson which appeared in the *British Medical Journal* of August 27, in which he described his experience as a patient in an L.C.C. hospital. Mr. Nicholson sustained a fracture of the neck of the femur, which it was advised should be nailed, and the operation was "most expertly carried out." The report adds that the operation was carried out at one of the Council's general hospitals by a senior resident medical officer.

INDIA

The Tuberculosis Campaign

Frequent allusions have appeared in this column to the increasing spread of tuberculous infections in India and to the steps taken in various parts of the country to combat it. An appeal was issued by the wife of the Viceroy for greater support of the King George Thanksgiving (Anti-Tuberculosis) Fund, and the response was so gratifying that the central committee appointed a technical committee of experts from the whole of India to formulate a general plan of campaign. A note has now been issued to all Provincial and State organizations with a view to formulating a uniform approach to the problem while allowing elasticity as regards local details and requirements. In this note it is stated that the dispensary clinic occupies a front place in the organization for combating tuberculosis in a given area and is the centre for preventive work. In urban areas such dispensaries should be established, each having its own staff under a full-time or part-time medical officer. Except in cities large enough to justify a separate building fully equipped and staffed, the dispensary should be situated within the boundaries of a well-established hospital in order to make use of the facilities for *x*-ray diagnosis and surgical work obtainable there. In rural areas tuberculosis clinics should be opened in existing dispensaries on fixed days each week. Emergency beds for temporary examination of suspected cases or for minor surgical treatment might be attached to the tuberculosis dispensary clinics. It is agreed in the note that, owing to the paucity of beds available in sanatoria and hospitals, domiciliary treatment must be the rule for many years to come in most cases, and the health visitors and care committees will have very important parts to play. It is possible, however, that open-air centres might be organized where patients could be kept by day, especially those coming from very congested areas. The health visitors or tuberculosis nurses should in general be specially trained women, some uniform rate of pay being arranged in each Provincial or State area. Care and after-care committees should be organized on a voluntary basis in connexion with all tuberculosis dispensaries and comprise non-officials as well as officials. The committee would meet at the dispensary, where the circumstances and difficulties of patients requiring aid would be explained, each case be considered on its merits and given financial help as required, and in some instances helped to find suitable employment. These committees would keep in touch with patients, when possible, after the completion of treatment. Appropriate training of the whole tuberculosis staff is laid down as an important function of the central and provincial organizations. School teachers in village schools could co-operate most usefully in anti-tuberculosis work if given training at Provincial and State centres. Sanatoria for tuberculosis cases might be increased on a district basis, and in cities some of their accommodation might be devoted to cases of the hospital type. In some areas the establishment of open-air schools, playgrounds, and open-air shelters is commended; in some areas the inauguration of open-air colonies adapted to Indian conditions might also be possible. The importance of ensuring the whole-hearted co-operation of medical practitioners is emphasized, and various local Government departments and voluntary societies, such as the Red Cross Society and maternity and child welfare organizations, could afford useful assistance, representatives of such being offered seats on the council of the tuberculosis association. In allocating funds an endeavour should be made to spend not less than 75 per cent. on institutions and organizations primarily of a preventive character, the chief of which is the tuberculosis clinic. In view of the widespread slum conditions which contribute so largely to the spread of tuberculosis in towns, and of the tendency to create more overcrowded areas, it is urged that tuberculosis associations should take a leading part in stimulating measures directed towards the removal of slum conditions and their prevention in future. These associations should also be responsible for the many kinds of educative work relating to control and prevention.

IRELAND

Northern Ireland Parliamentary Vacancy

Mr. Howard Stevenson, F.R.C.S., has been selected by the Queen's University Voters' Association as the candidate to represent the University in the Northern Ireland Parliament. The vacancy has been caused by the death of Sir Robert J. Johnstone, who had been the University member since 1921. It is not anticipated that there will be any opposition.

General Medical Council

At the last meeting of the Senate of the Queen's University of Belfast it was agreed that Professor C. G. Lowry, F.R.C.S., who holds the chair of midwifery and gynaecology, should be the University representative on the General Medical Council in the place of the late Sir Robert Johnstone.

Ulster Medical Society

At the opening meeting of the session Professor W. W. D. Thomson introduced and installed his successor, Dr. J. McCloy. Dr. McCloy, in accepting the office, referred in appreciative terms to the services rendered by his predecessor in the chair, to Professor Thomson's special contributions, to his hospitality, and also to his generosity in presenting to the society the portraits of Sir Hans Sloane and Sir William Whitla. Dr. McCloy referred in feeling terms to the irreparable loss sustained by the society, and also by the whole profession in Ulster, in the death of Sir Robert Johnstone among other former members who had passed away during the year. He then delivered a most interesting address on "The By-ways of Medicine," dealing with superstitions and examples of quackery, the effects and beliefs in charms not only in Ireland but in ancient history and the less enlightened parts of the world. The address was notable alike for the sustained interest it invited and for the charm of its form and delivery. Dr. A. Gardner Robb proposed a vote of thanks to the president, which was supported by Professor W. J. Wilson and agreed to with enthusiasm.

In anticipation of the completion next spring of the new Westminster Hospital at St. John's Gardens, Horseferry Road, the Governors have approved the immediate expenditure of £10,000 upon *x*-ray and other electrical equipment. The greater part of the lower ground floor of the new hospital has been allocated to electrical services.

Correspondence

Prophylactic Inoculation against Pneumonia

SIR,—I would be much obliged if you could grant me space to state the facts concerned in a lengthy experiment carried out by the South African Institute for Medical Research in collaboration with Dr. A. J. Orenstein, Chief Medical Officer of the Rand Mines, Ltd., Health Department.

The experiment was to run for a number of years, and was intended to study the effect of prophylactically inoculating certain native mine labourers on the City Deep Gold Mine at Johannesburg. The mine medical organization was to be responsible for the inoculation of the natives and for the keeping of the relevant records, while the Institute prepared the vaccine and carried out all the appropriate bacteriological and pathological investigations.

In the *British Medical Journal* of October 8 (p. 761) there appeared a reference to this experiment under "South Africa: Health of Rand Miners," abstracted from Dr. A. J. Orenstein's annual report on the Central Mining —Rand Mines Group—Health Department for 1937. The report disclosed that the figures concerned in this experiment for the first three years had been submitted to Professor Dalton of the Witwatersrand University for detailed statistical analysis, and the conclusion arrived at was to the effect that the inoculation was ineffective. The first knowledge the Institute had of this publication in the annual report was its receipt, in the ordinary course of distribution. The Institute subsequently drew Dr. Orenstein's attention to some very grave shortcomings in connexion with the carrying out of the inoculations and the keeping of records in the following respects.

The essential conditions laid down for the experiment were that every alternate native on engagement at the mine was to receive three doses of vaccine, each of 1 c.cm., at intervals of approximately seven days; the uninoculated natives were to serve as controls. These conditions were not fulfilled; indeed, upon investigation it was clear that the City Deep had only received 24,000 c.cm. of vaccine from the Institute, whereas they reported to have inoculated 10,943 natives in accordance with the conditions laid down. It is obvious that, allowing for wastage and for some of the vaccine having been used therapeutically in hospital in numbers of cases, less than two-thirds of the required inoculations could have been carried out. Nevertheless the total of 10,943 natives was returned as having been "inoculated," and these are the figures which were submitted to Professor Dalton for analysis. Furthermore, no records could be given of any of the natives individually as to the number of times each had been inoculated. It is thus impossible to draw any conclusions whatever from the figures submitted in connexion with this experiment.

I am not concerned with how or why the experiment was so unfortunately handled for a period of years, but only that the results published should not be allowed to influence the judgment, in respect of the value or otherwise of pneumonia prophylactic inoculation, of those not thoroughly informed of the facts.

That the reference which appeared in the *British Medical Journal* is likely to cause some concern amongst interested investigators is evidenced by correspondence already received by me with regard to it. (This letter has been shown to Dr. Orenstein, who agrees to its publication as representing the facts of the case.)—I am, etc.,

SPENCER LISTER,
Director, South African Institute for Medical Research.

Johannesburg, Nov. 15.

Profound Hypoglycaemia

SIR,—I have just read Drs. J. A. Price and A. B. Raper's study of hypoglycaemia with great interest (*Journal*, November 12, p. 987). They comment with surprise that their patient at a blood-sugar concentration of 20 mg. per 100 c.cm. of blood was not in hypoglycaemic coma and remark that this has not been recorded in the literature. Perhaps not exactly, but I have pointed out (*Diabetic Life*) that the blood sugar in diabetic children may fall below 30 mg. without *any* symptoms. My own blood sugar has been estimated accurately as 20 mg. during an insulin experiment without any more than trifling symptoms of shakiness, and I have had similar unexpected figures in children as out-patients who showed only slight pallor. I think habituation to low blood sugars leads to a tolerance to hypoglycaemia.—I am, etc.,

R. D. LAWRENCE.

London, W.1, Nov. 28.

The Pituitary and Diabetes

SIR,—It is difficult for a retired practitioner to follow all the implications of your article under the above heading in the *Journal* of November 19 (p. 1048), but it may interest and perhaps help the men who are studying this intricate subject if I place on record the following case history:

Some fifteen to twenty years ago I had a patient (a healthy and active business man of middle age) who developed an attack of encephalitis lethargica. The attack turned out to be a mild one and he duly recovered and went to a South Coast resort to convalesce. He stayed at a luxury hotel and enjoyed to the full the sybaritism of the table. When he returned he consulted me about an excessive thirst, and I found that his urine was loaded with sugar. Now (and here is the point of this letter) he had a sugar-free urine at the beginning of his illness. I know this, because I tested it in the course of my routine examination before making a diagnosis. He was put on diet (I don't think that insulin was a practical proposition at that time) with immediate disappearance of his thirst. His urine was examined every week; sometimes it was sugar-free, sometimes not, but the latter condition could always be traced to an indiscretion in diet. He is still alive and well and under the care of my successor. To a skilled observer there is a trace of Parkinsonism in his facial expression.

In my physiology days I believe I learned that in experimental animals puncture of the tip of the calamus scriptorius produced glycosuria. Since reading your article I have been wondering if reactive hyperplasia of the anterior pituitary to an encephalitis infection in its neighbourhood had some connexion with my patient's glycosuria.—I am, etc.,

G. A. GRIERSON.

Walesby, Lincs, Nov. 20.

Infections of the Hand and Fingers

SIR,—My attention has been called to the articles that have appeared in the *Journal* on treatment of infections of the hand and fingers by Mr. Norman C. Lake in your issues of October 1, October 8, and October 15. I have read them with interest not unmingled with surprise.

For the last fourteen years I have made a special study of the surgery of the hand, and the results of my experi-

ence are embodied in a book entitled *Chirurgie de la Main*, the third edition of which has just been published by Masson et Cie, Paris. It is impossible for me to discuss here the various points that seem to me to call for remarks. One instance, however, I may mention. Mr. Lake, while accepting Kanavel's anatomical descriptions as a theoretical basis, warns the reader that he may find pus where he would not expect to find it if he accepts literally Kanavel's teachings. Yet pus in the hand does not progress in a haphazard way; it follows well-defined paths, always the same for the same starting-points. The trouble is that these paths are not those described by Kanavel. By clinical and operative observation first, then by dissections and by experimental work, it has been possible for H. Evrard and myself to map out clearly the paths of infection in the hand and fingers. It will thus be possible for the surgeon to locate the pus, to foresee the channels through which it may spread, and to make the incisions suitable for each case.—I am, etc.,

M. ISELIN,
Surgeon, American Hospital of Paris.

Paris, Nov. 15.

Air Raid Precautions

SIR,—Many of us who served on subcommittees of hospitals to organize emergency medical services in the event of war were not only dissatisfied with, but extremely apprehensive of, the proposals. We were compelled to work within a framework imposed upon us by the Ministry of Health. Apparently we had no option. Adverse criticisms were made and, in my opinion, justly. While an organization was operating for the partial evacuation of the population of Greater London, concurrent arrangements were being made to concentrate enormous numbers of wounded in single buildings, which were highly vulnerable and in the very midst of the danger zone. To serve these wounded there was to be a lavish and reckless use of expert medical and nursing personnel with, again, this terrible concentration. The services of these experts were readily promised in spite of the sacrifice and the risks.

In war time if a commanding officer were given orders to occupy an untenable position by his superior officers, who were ignorant of the local conditions, he had to obey, but his first thought was to improvise what protection he could for his men. But how were we to find protection for our wounded and for our nurses? In my opinion we could give little or none. Every big hospital in London is near some legitimate objective of a bombing aeroplane, according to modern ethical standards. I believe that the unit in central London should not be a casualty clearing station unit at all, but more on the lines of a field ambulance unit, with aid posts in control of a medical officer or officers. Everyone with experience of the last war knows the implications of this and the vast difference. For one thing, instead of a large concentration of wounded, there would be a spreading out of the risks. It would admittedly be working under difficulties, but this would probably be the case anyway. No one of course knows what would happen in the event of war, but I imagine it is safe to say that for every bomb dropped on London during the last war, when flying was in its infancy, there would be hundreds in the next.

Recently one saw the strange spectacle of trenches being dug in remote country places, while we were arranging for a thousand wounded in St. Bartholomew's. Field ambulance headquarters could be scattered and housed in buildings some parts of which would be relatively safe in the event of the collapse of the superstructure. In the neighbourhood in which I am specially interested one thinks of certain parts only of St. Bartholomew's, the Old Bailey, and other solidly constructed buildings, and by the laws of chance it is unlikely that all would be hit. It will be objected that the sanitation would be difficult, but it could be improvised, as it had to be in field ambulances and casualty clearing stations in France.

Black Wednesday, September 28, is receding, and perhaps there seems an air of artificiality in discussing war measures now, but I have to admit that I was profoundly disturbed by our emergency arrangements. I have talked to many who, like myself, had front-line experience in the last war, and they think as I do. It was not only soldiers with whom we were concerned, but in the early days of the war we had to deal with large numbers of civilians of all ages—sick, wounded, and killed—and with women giving birth to children during bombardments, and the cry from the toughest men to the smallest children was always for cover. I cannot see the wounded content to be housed, even temporarily, say on the third or fourth story of a huge ferro-concrete building, a large area of the walls of which is composed of glass, even though it be covered by cellophane, brown paper, or three-ply wood. —I am, etc.,

F. G. CHANDLER, M.D., F.R.C.P.,
Physician, St. Bartholomew's Hospital.

London, N.W.1, Nov. 23.

SIR,—I was very interested to read Dr. C. Watney Roe's letter on bomb-proof shelters in the *Journal* of November 19 (p. 1064). Since May of this year I have been advocating bomb-proof shelters in Halifax as a *sine qua non* in any well-thought-out scheme of air raid precautions. Until such shelters are properly erected in sufficient numbers our people will continue to live in danger of mass slaughter. Improvisations are no use. The high-explosive bomb is a terrible weapon. The time has arrived—and it may be too late if we continue to delay in this matter—when every town should be provided with sufficient well-constructed bomb-proof shelters.

As regards first-aid posts, I am of the opinion that these, to be efficient, should be specially constructed. The adaptation of old buildings, schools, etc., will mean inefficiency, waste, and unnecessary loss of life. In view of the present very disturbed state of Europe—and the psychology underlying such disturbance—air raid precautions are likely to continue a permanent feature of our social structure. Of course the whole thing is a very sad commentary on our so-called civilization, but in the present circumstances it is our duty to give really adequate and efficient protection to our people. Half-measures will not do.—I am, etc.,

GEORGE C. F. ROE, M.R.C.P., D.P.H.,
Medical Officer of Health, Halifax.

Nov. 21.

Food Supply in War Time

SIR,—In the Report of the Food (Defence Plans) Department for 1938 we read that "the experience of the great war shows that if control is to be effective in maintaining supplies and holding prices it must be introduced before and not after a shortage has arisen," but according to the figures given there is even to-day, before war starts, a serious shortage. In an article of mine in the *Medical Officer* (March 13, 1937), based on figures supplied by Viscount (then Mr.) Runciman as President of the Board of Trade, I pointed out that for everybody to have 5 lb. of flour a week (the amount stated as necessary by the National Dietary Committee) we need a total of 4,700,000 tons a year. The Food (Defence Plans) Department allows only 4,450,000 tons, and there are available only 4,450,000 tons yearly. If there is this shortage during

peace, how can we hope for satisfactory supplies during war? The amount of milk needed, as stated in the report, is 910,000,000 gallons, but the amount consumed to-day is only 785,000,000 gallons—or less than one-quarter pint a head daily—while 380,000,000 gallons go into factories at less than half the price which is paid by poor people for this essential protective food. It is stated under the heading of "other vegetables" that 2,425,000 are available. I have shown that if we allow only 1 lb. of green vegetables a head a week, which must be fresh so as to be "protective," we need a total of 900,000 tons a year. According to the figure given by the Food (Defence Plans) Department only 750,000 tons are produced at home, so that even during peace time there is a shortage.

The figures given by this Department also show that we produce only 8,000 tons of butter yearly, although 89,000 tons of cream are produced. The poor people get very little butter and they never get cream, so that the Food (Defence Plans) Department is going to maintain a supply of 80,000 tons of cream for the benefit of those who already are overfed. Is this a sane method of allowing the people to be fed? The A.R.P. arrangements have been shown to be anything but what they should be, but, alas! the Food (Defence Plans) Department arrangements are such as to reduce the people to a level at which no A.R.P. arrangements will be necessary!—I am, etc.,

Swansea, Nov. 19 G. ARBOUR STEPHENS.

Decline of Breast-feeding

SIR,—I was particularly interested in Dr. Horace A. Nathan's views (November 19, p. 1062) on the decline of breast-feeding. He states: "There are patients who, *in spite of* every encouragement, *supplementary feeding*, and all the other usually employed devices, prove themselves beyond any doubt incapable of supplying in the natural way any useful contribution to the baby's daily needs." (The italics are mine.) I think Dr. Nathan has indeed struck the nail on the head; for I contend that supplementary feeding is one of the chief causes of insufficiency of breast-milk, and is, in fact, one of the methods generally adopted when weaning is indicated. I am afraid that supplementary feeding is only too often advocated when complementary feeding should be the method of choice. Admittedly the terms "supplementary" and "complementary" are very confusing with regard to breast-feeding; but all textbooks teach that the supplementary feed is given to replace the breast-feed entirely for that particular meal, and that the complementary feed is given after the breast-feed to make up any deficiency in the mother's milk supply.—I am, etc.,

Southampton, Nov. 22. S. CHALMERS PARRY.

SIR,—The address by Dr. J. C. Spence and the subsequent correspondence in the *Journal* prompt me to discuss a type of failure confined to a comparatively short period of the breast-feeding age—the failure which occurs in the first four weeks. Some time ago I undertook an investigation into the phenomenon, and it may not be outside the range of the present discussion if I quote the results of my inquiry and the opinions which, rightly or wrongly, I deduced from them.

During the investigation I found that in North Derbyshire 4.3 per cent. of the infants alive at 4 weeks had been completely weaned. Of those alive at 6 months 26 per cent. had been weaned. Of all weanings in the first six months in that area not less than 17 per cent. took place in the first month. In all I inquired into 100 cases of this type, eliminating all cases in which the weaning was brought about by some obvious reason such as the illness or absence from home of the mother, illegitimacy, etc. I considered all the factors discoverable which might have had a bearing on the failure of natural feeding, whether affecting the mother or the infant; such conditions as, for instance, too frequent or irregular feeds, the state of nutrition and health of the mother, the condition of her nipples, the prematurity or immaturity of the child, and mechanical difficulties, such as hare-lip and cleft palate. The broad results of the inquiry are set out in the table.

An Analysis of One Hundred Cases of Failure of Breast-feeding in the First Month

	Primary Cause	*Other Conditions Present*	%
33	Return to domestic duties	None discovered	
11	Ditto	Depressed nipples	
1	Ditto	Somnolence	
12	Ditto	Too frequent feeding ..	63
2	Ditto	Mother undernourished ..	
2	Ditto	Mother ill	
1	Ditto	Weakling	
1	Ditto	Depressed nipples; weakling	
4	Nipple trouble—sore		10
6	Ditto—depressed		
3	Exudative diathesis (dyspepsia)		3
1	Mother undernourished		1
2	Mammary abscess		2
1	Birth injury to child		1
7	Weakling		9
2	Ditto	Depressed nipples	
2	Cleft palate		2
9	Bad management during lying-in period		9
100			100%

In thirty-three instances the milk had been well established while the mother was confined to bed, all conditions for suckling were favourable, there was no apparent reason for weaning, but the milk became scanty when the mother got up and weaning followed. In thirty other cases there were various conditions present which might have influenced the issue to some extent, but in my opinion none of these were grave enough in themselves to have caused failure, and in all of these cases breast-feeding had been quite satisfactory up to the time when the mother left her bed. In the remaining thirty-seven cases there were obvious troubles, as set out in the table, which in the majority of instances were probably the primary causes of the failure. It will be apparent, however, that even among this group of thirty-seven there were a considerable number in which weaning need not have taken place, if only the difficulty had been taken in hand soon enough and energetically enough; the ten cases of nipple trouble, for instance, and the nine cases of "bad management," by which I mean lack of will to nurse, or lack of perseverance, or unwise advice given by relations or friends. Probably, too, the nine "weaklings" could have been successfully breast-fed if dealt with in a hospital or institution.

The really significant group, however, is the sixty-three at the head of the table. Why did failure occur in these cases? Nipple trouble had little or no effect during the first fortnight, too frequent feeds had no material influence, nor had the condition of the mother as to health or nutrition. Yet at the end of the month all had been weaned. In the words of the mothers themselves, "the milk went when I got up." Why? Should the mother have stayed in bed a little longer and had more rest? One case, included in the table, and two others, not included, are significant. In one the mother lay in bed twenty-three days owing to a post-partum haemorrhage; during this period suckling was thoroughly satisfactory. Directly she got up her milk became scanty. In another case the woman was confined while away from home with friends. She remained away five weeks, during which time her milk was ample and the baby thriving. On her return home the milk at once faded away. In the third case the mother lay in bed six weeks with phlebitis. The child was quite satisfied during this time and put on weight, but as soon as the mother got up and resumed domestic duties the child became uneasy and dissatisfied. Supplementary feeds were begun and weaning ensued.

Three cases of depressed nipples are instructive. I found that while in bed there was plenty of easily flowing milk, and

the infants secured enough for their needs. Directly the mother left her bed the flow became less free and the infants were "suffocated" in their efforts to get a firmer grip of the nipple. In all these sixty-three cases there is only one common factor—the rising from bed and, with it, the resumption of domestic duties and anxieties. I formed the opinion that this was the decisive issue, though helped, no doubt, in some cases by auxiliary factors, in bringing about the early weaning.

The fact is that efficient motherhood is almost, if not quite, a whole-time job. Anything that diverts the mother's energies from the strict business of nursing her child, whether it be the mental and physical strain of the working-class woman returning to domestic duty or the social engagements of the more leisured classes, will detract from the continued efficiency of the maternal function. It is largely a psychological problem. I have formed the opinion that this early failure occurs more often in the anxious, highly strung woman than in the woman of the stolid and phlegmatic type, in the "Marthas" of modern life, "careful and troubled about many things," rather than in the idle and less caring. The feckless and the slattern can feed successfully in almost any circumstances and up to almost any period. In short, it is the best type of womanhood who most needs our help and consideration at this critical period.—I am, etc.,

H. W. POOLER, M.B.,
Ashover, Nov. 24. Medical Officer to Child Welfare Centres, Derbyshire County Council.

REFERENCE

Brit. J. Child. Dis., 1930, **27**, 269.

SIR,—After conducting four infant welfare centres weekly for ten years, may I contribute the following observations on breast-feeding? In my experience breast-feeding is a function of the endocrine system, and as such is largely beyond our scope—some women successfully breast-feed all their babies without any trouble, others never achieve it. It is much more than a question of adequate diet. One woman feeds herself on the ideal diet, grows fat, and has a thin inadequate milk supply. Another woman is palpably underfed and successfully suckles a lusty baby. I often get mothers to put their babies to the breast at the clinic, and to see the half-starved infant trying to avoid the nipple, taking a few despairing pulls at it, and then bursting out into cries of rage, convinces one that in these cases the psychological benefits of breast-feeding are *nil*, and that the game is not worth the candle. I give the mothers a pamphlet on breast-feeding; I suggest, and often supply from the clinic, lactagol, calcium and iron tablets, free milk, etc.; but I find that if the milk supply has begun to fail these things seldom restore it. This may be a confession of failure, but it is my experience. The successes of such places as the Mothercraft Training Centre, where mothers and babies are admitted and breast-feeding re-established, are not reproduced in the ordinary conditions of clinic work. I should say that not more than 50 per cent. of our mothers, leading a poverty-stricken, working-class, town life, are able to breast-feed; I should say also that 99 per cent. of them would like to breast-feed, and that all those who do so successfully enjoy doing it.

Fortunately these views are not so gloomy as might be supposed, for I would defy any doctor given a hundred children of 1 year of age to examine to pick out those who had been breast-fed and to be 100 per cent. right. I endeavour to examine all babies under my care on their first birthday, and I do not find any marked difference between naturally well-fed babies and artificially well-fed babies, using such criteria as closure of fontanelle, number of teeth, firmness of limbs, etc. The same thing applies in the examination of 5-year-olds at their school entrance examinations; the exceptionally well-developed child has by no means always been breast-fed.—I am, etc.,

Bournemouth, Nov. 26. GRACE H. WOOD.

Prevention of Breast Infection

SIR,—Breast abscess may also arise through massaging the breast with undue heaviness and thereby bruising the tissues. This may explain an apparent epidemic in an institution, the probationers being insufficiently supervised. I have just dealt with two such abscesses of contusion: one followed excessive massage, the other recurrent strenuous efforts to get a retracted nipple into the baby's mouth by compressing the breast surrounding the nipple with the fingers.—I am, etc.,

Birmingham, Nov. 20. W. J. BURNS SELKIRK.

Mental Treatment Services

SIR,—A perusal of the Board of Control's *Annual Report for the Year 1937* (a précis of which appears in the *Journal* of November 12 (p. 1006)) gives rise to the reflection that, though in many respects an enlightened and illuminating publication, it is, with respect to a number of matters, apt to give a misleading impression.

1. The Board criticizes the development of out-patient centres on the ground that the function of many of these centres is mainly diagnostic. While with regard to out-patient centres organized in association with mental hospitals this may be true, it must not be taken to speak for the country as a whole. In Liverpool, for example, the Board can only speak for three of the ten psychiatric out-patient clinics in existence in the city. At two of the voluntary clinics—the Liverpool Psychiatric Clinic and the Department of Psychological Medicine of the Liverpool Royal Infirmary, both clinics at which patients are seen regularly for treatment—there were dealt with during the twelve months ended March 31, 1937, 496 new patients, total attendances numbering 3,446. The corresponding figures for the three clinics associated with the local mental hospitals were: new patients 181, total attendances 1,445. Comparisons are odious, but these figures are quoted solely for the purpose of suggesting that, in one area at any rate, the picture is not quite so discouraging as the Board's report would have us suppose. Moreover, during the year ended December 31, 1937, the volume of work dealt with by the two clinics referred to above was almost double that for 1935, amounting to 602 new patients and 4,428 total attendances.

2. Allusion is made to the difficulty of staffing such centres, and the St. Albans Clinic is cited as an example of how psychotherapists in outside practice have been employed. While it is only with the greatest hesitation that one would claim sufficiency in number of staff in a rapidly growing clinic, it is notable that the Liverpool Psychiatric Clinic (founded so comparatively long ago as 1924) has a medical staff of six persons—three men and three women; and with regard to the Board's statement that " . . . if centres continue to be staffed insufficiently or by doctors who have to give up (as many do) part of their leisure to out-patient work, there can be little hope of improvement in this direction," it should be pointed out that of these six medical officers one only receives part-time remuneration, the services of five being rendered voluntarily. It is felt very strongly that the Board of

Control could play a valuable part in encouraging co-operation between the various services dealing with mental treatment. A natural reply to this suggestion is that this is a matter for the locality concerned, but on reflection there will perhaps be realized the obvious difficulties that are apt to arise, difficulties that are more easily overcome if assistance and guidance come from a central and, so far as the locality concerned therefore an independent, body or authority such as the Board.

3. The report states: "To start a private practice in psychiatry to-day outside of London is a hazardous adventure. It is not surprising that, except in London, there are lamentably few private practitioners in this branch of medicine. . . ." While it may be admitted that relatively the number of psychiatrists practising privately is all too few, it might be pointed out that there are in this city no fewer than ten fully accredited specialists whose practice is devoted to psychological medicine. Five of these have been in whole-time psychiatric practice for periods of twelve to fifteen years. It is, therefore, not altogether a shortage of those who will dare "the hazards and prizes of private practice" that is the difficulty so much as a lack of disposition on the part of those concerned to encourage co-operation with psychiatrists, however qualified and experienced, who are not members of the mental hospitals service.

I do not speak for the governing bodies of the clinics to which I have referred, and this is but a personal view, but it has seemed to me that it would be most undesirable in relation to psychological medicine for there to occur between official treatment services on the one hand and voluntary and private effort on the other that cleavage which long ago occurred in the hospital services devoted to physical medicine—a gap which it has proved so difficult to bridge. It would seem unfortunate if, at this comparatively early stage, the opportunity for greater co-operation should be lost.

Finally, and with the utmost respect, it is submitted that before generalizing with regard to conditions of treatment service and of psychiatric practice, attempting to speak for the state of affairs as related to the country as a whole, or authorizing the establishment of new centres, the Board of Control should acquaint and familiarize itself not only with the facilities and centres directly associated with the institutions under its supervision but also with the work that is going on outside its immediate purview. It may be argued that these efforts are no concern of the Board's, but that is also an argument against the issuing of general statements which do not give an accurate presentation of the facts.—I am, etc.,

Liverpool, Nov. 21. S. BARTON HALL, M.D., D.P.M.

The Occipito-posterior Case

SIR,—Although I do not agree with much of what Dr. David Price says (*Journal*, September 17, p. 638), I do agree with him that when the head (in the occipito-anterior position) has become fixed or impacted behind a partly dilated cervix it is so difficult for further dilatation to take place as to interfere seriously with the progress of labour. In fact, this condition has been the commonest cause of protracted labour in my experience. Here also I must agree with Dr. Price in that I consider that the application of forceps through the partially dilated cervix is the treatment of choice. We get remarkably few cases of persistent occipito-posterior presentation in this part of the country, so that I am speaking of cases of occipito-anterior presentation only. The usual case has proceeded normally but slowly until this stage is reached, and then, in spite of strong pains, no further progress is made. The pains begin to diminish in frequency and severity, and the case is further protracted by secondary uterine inertia. On vaginal examination one can feel a substantial rim of cervix all round the head, and this is often after several days of strong labour. If forceps are now applied and, with a finger in the vagina carefully gauging the tension on the cervical rim, traction is exerted, it will be found that a considerable force has to be used to get the head to move. Once on the move, however, my practice is to remove the forceps, and I find that the pains soon come back, the cervix dilates rapidly, and the foetus is speedily delivered with remarkably little trouble.

If it were more generally realized that the commonest cause of slow dilatation of the cervix is not rigidity but impaction of the head in the middle of the birth canal, the conservative use of forceps in this way would be an everyday matter and not a cause of horror, as it seems to be. After all, the country practitioner is now, as he has always been by force of circumstances, the acknowledged expert in cases which without being abnormal are really difficult.—I am, etc.,

W. H. M. WILSON.

Burnham-on-Crouch, Essex, Nov. 19.

Adrenaline Treatment of Asthma

SIR,—May I refer to some points raised by the correspondence on the above subject.

The effect of injecting adrenaline is purely physiological. It evokes all the phenomena normally evoked by stimulation of the sympathetic system, including active dilatation of the bronchi and bronchioles. In allergic asthma the condition is one of vagotonia, and it should be remembered that many such patients have a low blood-pressure and some degree of hypoglycaemia.

The effect of an injection of, say, 0.5 c.cm. of a 1 : 1,000 solution of adrenaline in a healthy individual is to produce an *appearance* of fright or disturbed emotion in the absence of *real* fright or emotional disturbance; that is to say, pallor, dilated pupils, "starting eyes," dry mouth, goose-flesh, quick, deep breathing, with increased secretion of urine. Emotional disturbances are *par excellence* the common stimuli which cause the adrenal glands to become active and, through their hormone, the appearance associated with the corresponding emotion. Plentiful reserves of sugar are poured into the blood and the bronchi are dilated, so that the individual is in a state of mobilization, instantly ready to fight or fly. It is not unusual to find that a sudden access of temper occurring on the inception of an attack is sufficient to provide adequate stimulation of the adrenals and that the paroxysm does not materialize or is aborted. When adrenaline is injected in asthma we are not supplying a deficiency directly but merely stimulating the sympathetic system generally and through it the adrenals, which provide their own adrenaline. The injection is merely the detonator, or the pinch of powder on the touch-hole of an old-fashioned cannon. Bronchospasm is an indication of vagotonia or vagosympathetic imbalance. The injection adjusts it and brings about a temporary sympathotonia.

I have never seen the symptoms mentioned by Dr. Joah Bates (*Journal*, October 29, p. 921)—continuous dyspnoea and cyanosis—in a patient with allergic bronchospasm and a normal circulatory system, in spite of the fact that post-mortem records show that approximately one person in three has some form of patent interauricular communication. Such symptoms would suggest to me an underlying abnormality in the circulatory system.

It should not be lost sight of that in persons who have never had a typical paroxysm of asthma some degree of spasm of the smaller bronchioles is not infrequently found, the only complaint being of "chestiness."

I have always found it preferable to give a small dose of adrenaline at the earliest possible moment, if necessary self-administered by the patient himself. In this way 0.2 c.cm. may suffice. It has been my experience that the longer one can ward off a fully developed paroxysm the less likely the patient is to have one. I have never seen pulmonary congestion or cardiac failure, or for that matter arteriosclerosis, after long-continued use of adrenaline in a patient with a normal circulatory system. As regards pulmonary congestion, is not adrenaline actually useful as a haemostatic in haemoptysis?—I am, etc.,

Brookwood, Surrey, Nov. 25. H. M. STANLEY TURNER.

SIR,—When I mentioned 60,000 injections I was relying on the patient's own statement. He was a highly scientific man and I had no reason to doubt his figures. He had his first attack of asthma in the night after some polypi were removed, and he subsequently used adrenaline by injection for over twenty years. I first saw him in 1907 when he had had asthma for three years, which had been made progressively worse by further operations for the removal of polypi and clearing of the ethmoidal cells.

For perhaps some eight or nine years I was able to restrain him from having more polypi removed, and he was able to exist in a fair amount of comfort with three or four injections of adrenaline a day. Then an eminent rhinologist undertook to cure his asthma by a further nasal operation. The patient asked my advice, and I told him that I was anxious not to interfere with the prospect of his obtaining relief but that I believed the operation would increase his daily injections of adrenaline from three to five. My surmise was not altogether correct, for after the operation he needed eight injections a day. The rhinologist was confident that another operation would cure him completely; this was done, with the result that the daily injections went up to twelve. Some time later the rhinologist discovered yet another polypus and persuaded the patient that this was the sole remaining cause of his asthma. His distress by this time had become so acute that he allowed this to be removed, and subsequently he required twenty injections a day to enable him to breathe.

Ever since 1903 I have issued warnings against the indiscriminate removal of nasal polypi in asthmatic cases. In the *Journal* of August 29, 1925, I wrote: "If operators could see some of the many patients who come to me who have been made helpless asthmatic wrecks by nasal operations for the removal of polypi they might possibly pause and think." In a paper in the *Practitioner* of September, 1929, Dr. Clement Francis clearly discussed the question of when to remove polypi in asthmatic cases. Yet some rhinologists will not realize that it is disastrous to remove polypi by extensive operation from aspirin-sensitive patients, especially when the blood pressure is low. I wish Mr. Hutchinson could suggest some method of giving relief to a patient who has had a submucous resection of the nasal septum, complete removal of polypi, free drainage of the ethmoidal cells and antra, in addition to allergic tests and treatment including living in a dust-free atmosphere; and who now needs to be continually under the influence of adrenaline, which at times gives little more than temporary relief. I know other cases whose present desperate condition is, I maintain, due to their having had nasal polypi removed when they were aspirin-sensitive.—I am, etc.,

London, W.1, Nov. 27. ALEXANDER FRANCIS.

Artificial Anterior Pneumomediastinum

SIR,—I would like to correct a false impression which may be created by your reference in the annotation on extrapleural pneumothorax (*Journal*, November 19, p. 1050) to a paper of mine on artificial anterior pneumomediastinum (*Post-grad. med. J.*, 1938, **14**, 216). In that paper I believe I was more cautious than appears from your reference in assessing the value of artificial anterior pneumomediastinum as an agent of collapse therapy, and I emphasized that it is not intended to replace artificial pneumothorax. When this is not possible and the lesion is moderately recent and situated in the anterior and paramedian aspect of the lung, I believe that artificial anterior pneumomediastinum should be given a trial. An incitement to research with this new procedure is very different from a recommendation of its more or less indiscriminate application, which was never in my mind.

I would like also to lay stress on the fact that the procedure was intended by its originator, Professor Condorelli, to serve as an aid to the diagnosis of conditions affecting the pericardium and the mediastinum, with special regard to pleuro-pericardial and pericardio-sternal adhesions. Its diagnostic value is, to my mind, quite well established, and has been confirmed at the Italian Hospital in a recent case. In this the skiagraphic demonstration of air between the sternum and the heart and in the pleuro-pericardial spaces, after the introduction of 200 c.cm. of air into the anterior mediastinum, excluded the clinical diagnosis of adhesive pericarditis and saved the patient from an unnecessary operation. I would like to add that no untoward effects were observed in this patient.—I am, etc.,

Italian Hospital, London, W.C.1, Nov. 22. E. MONTUSCHI, M.D.

The Blood Platelet

SIR,—The routine examinations of the blood I have been accustomed to make, which include the use of the dark-ground condenser, have led me to conclude that blood platelets are agglutinated colloid (protein) particles.

Employing the terms to which I am used, agglutination is a stage of dehydration which separates this chemico-physical change from the one of hydration. Any agent which dehydrates the colloid particles in the blood, which are mainly protein in nature, tends to increase the number of the platelets, whereas the production of hydration has the reverse effect. In citrated, oxalated, or heparinized blood, provided sufficient hydration has been produced, no platelets are to be found in the plasma which is examined with a dark-ground condenser. But when a calcium salt, which dehydrates these hydrated colloid particles, is allowed to reach the plasma under the cover-slip, platelets of varying shapes and sizes appear in abundance. The significance of the presence or absence of platelets as an isolated observation is nil.—I am, etc.,

London, W.1, Nov. 25. J. E. R. MCDONAGH.

Grenz-ray Therapy

SIR,—I was interested to note the annotation in your issue of November 26 (p. 1093) on Grenz rays. In co-operation with Bucky I have investigated the influence of these rays in a number of constitutional diseases. It is impossible to discuss results in a letter, but it is perhaps of interest to mention that very good results have been achieved in previously intractable cases of bronchial asthma and in certain forms of arthritis. I quote these

two diseases as you referred to them specially in connexion with Scott's work. This author, working with deep *x* rays, has shown that medium voltage, comparatively large field, and small dosage should be applied to indifferent areas of the body. Similar principles are applicable in Grenz-ray therapy, but instead of 100–150 kV it is the practice to apply 10 kV with consequently very greatly reduced *x*-ray energy.

I welcome the suggestion advocating a controlled investigation of the effect of Grenz rays in various constitutional diseases. This method of treatment is without danger and is simple to carry out. Further, the method is economical in use, and this is a factor of particular importance in considering the application to any large-scale investigation. Though it is possible to point to more than 1,000 references in the literature of Grenz-ray therapy there are as yet but few publications dealing with this treatment in constitutional diseases. Further work in this direction is certainly indicated.—I am, etc.,

London, W.1, Nov. 27. Z. A. LEITNER.

Control of Small-pox in India

SIR,—Although the infectivity of variola minor is low, Dr. C. Killick Millard is not correct in his statement that it is not infectious, nor, indeed, is it an entirely harmless disease. In "A Critical Review of the Clinical Features of 13,686 Cases of Small-pox" (variola minor), Dr. J. Pickford Marsden (L.C.C., 1936, No. 3,209) reports that three cases were toxic and nineteen confluent, while the total number of deaths was thirty-four (0.25 per cent.). Among these deaths small-pox was the direct cause in five, the immediate cause in eleven, a definite contributing factor in three, and a remote contributing factor in fifteen. Complications are also not unknown in variola minor similar to, if not so frequent as, those found in variola major, such as subcutaneous abscesses, encephalomyelitis, and various ocular complications, as shown by Dr. C. R. M. Greenfield, who reported 218 cases (3.4 per cent.) among 6,233 small-pox patients admitted to the river hospitals of the L.C.C. in 1930 (Ann. Rep. L.C.C., 1930, **4** (Part III), 174.—I am, etc.,

London, W.8, Nov. 25. J. D. ROLLESTON.

SIR,—While agreeing with Dr. C. Killick Millard (November 19, p. 1061) that the mortality from small-pox in India is appalling, I cannot agree with the measure he propounds to combat it. I do not propose to discuss the merits or demerits of his suggestion, but merely the practicability of introducing it into that country. My experience of the various sects in India, and having had to deal in an administrative capacity with outbreaks of 5,000 (registered) cases annually, and smaller outbreaks elsewhere in India, convince me of the danger of the suggestion. When a certain sect, at the worst stage of the disease, wishing to appease the evil spirit (or the goddess Mithra) gathers a party of the relatives—men, women, and children, perhaps all unvaccinated—around the confluent case of small-pox, how on earth can one prevent the spread of the disease when many will not even hear of being vaccinated? I have seen this often. Not only this, but they will often block up the small inlets for ventilation (apologies for windows) to propitiate the evil spirit. In such places there are large groups of people living one above the other and perhaps on the same storey. Many of the leaders of the sects, and even some active practitioners, have no faith in vaccination. I have often been able to persuade (the work is really a missionary effort) early infected cases to be vaccinated, with a modification of the disease and saving of life. Again, not only are these houses infected—and their construction makes practical disinfection an impossibility—but often the clothes of the deceased patients are sold, and the clothes of vaccinated contacts will still carry the disease.

The first line of defence, in my opinion, is education of the leaders of the people as to the value of vaccination. With a view to enlightening these leaders—often on municipal bodies—in sanitary matters and public health generally, I started the *Indian Public Health and Municipal Journal*; the various municipalities took this journal and the local Governments subscribed for certain copies for distribution. Keener insight is now being shown in sanitation, but there is much to be done owing to the stupendous problem of fighting against religious views and ignorance. There is no evidence that vaccination has lamentably failed in India. On the contrary, where vaccination has been used the statistics show its great value.

Now, what would be the effect of introducing inoculation with the virus of variola minor in place of vaccination with calf lymph? In the first place, it would mean making a new start and undoing the past education and belief in vaccination, and all that has been gained by it under difficulties. Dr. Millard now proposes to tell the people that doctors are actually going to produce in them a mild type of small-pox so that they may be protected against a severe type. Not only would this be "handing the torch" to others, so far as the disease is concerned, but agitators would say, "The British Government is producing a loathsome disease among the people and many of our children will die of it." It would be dangerous to give them such an argument, and the administrative difficulties would be enormously increased. We cannot afford to try the experiment in India, as variola major would still exist and its existence to any larger degree would be put down to the experiment. Why not leave well alone and continue the education of the leaders and all medical men in India as to the value of vaccination. The people are coming to recognize its value; why break this trend?—I am, etc.,

Ilford, Nov. 21. A. G. NEWELL, M.D., D.P.H.

SIR,—Dr. C. Killick Millard's statement in his letter in the *Journal* of November 19 that vaccination in India has been "a lamentable failure" cannot be allowed to pass unchallenged. Far from being a failure, the success of vaccination will not be disputed by any medical officer who has served in India. May I inquire if Dr. Millard has any experience of India? Also, how many of the deaths he quotes from the statistics in Bengal were among vaccinated people? Statistics may prove anything, especially in India. The registers of births and deaths in the villages are kept by the village watchmen, who are mostly illiterate, and therefore the records of the causes of death are very unreliable. All cases with a pustular eruption would be entered as small-pox. I am of opinion that if vaccination were made compulsory small-pox would soon be stamped out. During my service in the Punjab as regimental medical officer and civil surgeon I have never seen a case of small-pox in a properly vaccinated person—that is, one showing three good marks on each arm. Small-pox is unknown in the Indian Army and the Police Service, where vaccination is compulsory. The Punjabi woman realizes the value of vaccination, and will bring her infant from outlying hamlets two or three miles for vaccination and inspec-

tion. A great deal depends upon the proper supervision of the vaccination staff and the help given by the local notables and headmen of villages. Certainly vaccination in the Punjab is anything but a failure.

Possibly political reasons—which I need not specifically explain but which will be understood by anyone with Indian experience—have led to laxness in vaccination in Bengal. If the work of the vaccinators is not properly inspected one cannot expect to have good results. When I was a civil surgeon I had to inspect the vaccination, and I always found the work was good and failures were extremely few. In my time it was common to see elderly Indians pock-marked; but it was rare to see Indians under 30 marked at all. I can only answer for my own province; but from what I have seen there I can entirely refute Dr. Millard's statement.—I am, etc.,

H. C. KEATES,
London, S.W.16, Nov. 23. Lieutenant-Colonel I.M.S. (ret.).

R.M.B.F. Christmas Gifts

SIR,—We have the following letter to our beneficiaries ready for dispatch, printed with suitable decoration in red and green:

Christmas Greetings from the Royal Medical Benevolent Fund.

Dear ——,

Many supporters of the Royal Medical Benevolent Fund have kindly subscribed to a Special Fund which enables the Committee to send you the enclosed Christmas Gift of thirty shillings.

We all hope that the Gift will contribute to your happiness, and it brings from many friends Christmas Greetings and Good Wishes for the New Year.

With kind regards,
Yours very truly,

Unfortunately, Sir, we have not yet received sufficient response to my appeal to enable us to send the thirty shillings to all our beneficiaries. May I ask your readers who have not responded to my letter which appeared in your paper during the month of October to send a donation as soon as possible so that we may make the distribution in proper time. Contributions, large or small, will be gratefully received by the Honorary Treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, London, W.1.—I am, etc.,

THOS. BARLOW,
Nov. 30, 1938. President.

The Services

RHEUMATISM RESEARCH: NAVAL TRAINING CENTRES

It is announced by Lord Horder that the Empire Rheumatism Council, in co-operation with the Admiralty, has set up a Research Foundation to investigate the causes and the best means of prevention and treatment of rheumatic disease in the training establishments of the Royal Navy.

The history of rheumatic disease in the Navy in recent years shows that up to the first decade of this century rheumatism was a considerable problem in H.M. ships. It is now rare among trained seamen; the success in overcoming it is probably due to the improvement of medical services and living accommodation. In the training establishments, however, the position cannot yet be considered entirely satisfactory, and the Medical Service of the Admiralty and the Naval Medical Staff, hospitals, and laboratories will assist the Empire Rheumatism Council Research Foundation in its investigation in every way possible. The Empire Rheumatism Council recognizes the importance of the task, not only as a service to the principal line of defence of the realm, but as a highly promising opportunity of solving one of the chief problems of the causation and treatment of rheumatic disease, since there will be opened up a wide field of research among a great number of youths, all of the same age-group, all under disciplinary control and subject to medical observation over a long period. Accordingly it will enlist to the fullest necessary extent its scientific resources for this Research Foundation.

The Research Advisory Committee has appointed an *ad hoc* subcommittee, consisting of Lord Horder, Sir William Willcox, Professor Geoffrey Hadfield, Dr. Mervyn Gordon, and Dr. W. S. C. Copeman, to supervise the work generally. Dr. C. A. Green comes from the Bacteriology Department of Edinburgh University to take direct charge of the Foundation; the Sir Halley Stewart Trust has granted him a Research Fellowship for three years for this task, and he will be assisted by other permanent workers as and when found necessary. Every factor in the problem—bacteriological, biochemical, and environmental—will be investigated at the chief naval training establishments.

DEATHS IN THE SERVICES

Surgeon Captain KENNETH HURLSTONE JONES, R.N. (ret.), died at Canterbury on November 15, aged 65. He was educated at Owens College, Manchester, and graduated M.B., Ch.B. at the Victoria University in 1897. He entered the navy immediately afterwards, became fleet surgeon on November 29, 1911, and retired with an honorary step in rank as surgeon captain on January 1, 1924. He served throughout the war of 1914–18, receiving the medals. He received the honours of Officer of the Order of the Crown of Belgium and Commander of the Order of St. Stanislaus (with Swords) of Russia, and was surgeon to the Canterbury Corps of the St. John Ambulance Brigade. In 1905 he contributed an article to the *British Medical Journal* on a case of primary sarcoma of the lung, and four years later one on the birds of Wei Hai Wei. He had been a member of the British Medical Association for thirty-nine years.

Universities and Colleges

UNIVERSITY OF OXFORD

On January 1, 1939, Dr. B. G. Maegraith will succeed Dr. K. J. Franklin as Dean of the Medical School.

UNIVERSITY OF CAMBRIDGE

The Faculty Board of Medicine has appointed Dr. T. S. Hele (Master of Emmanuel College), Dr. G. S. Graham-Smith, F.R.S., and Mr. W. H. Bowen to be members of the M.D. Committee for the year 1939; and Dr. W. L. H. Duckworth to be an Awarder of the Marmaduke Shield Scholarship.

Applications for a John Lucas Walker Studentship should be sent before December 10 to Professor Dean, at the Department of Pathology, to whom requests for further information regarding this studentship may be addressed. It is tenable for such period, and will be of such annual value not exceeding £200, as the Professor of Pathology with the approval of the Managers may determine.

J. B. Watson has been approved at the examination for the Diploma in Medical Radiology and Electrology.

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

POSTGRADUATE DIPLOMA IN PSYCHOLOGICAL MEDICINE.—*With Special Knowledge of Mental Diseases:* H. N. Bradbrooke, J. E. O'N. Gillespie, D. Gilmour, J. B. Phillips. *Part A:* R. W. Crocket, M. S.-M. Rayner.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have satisfied the examiners at the examination indicated:

MASTERY OF MIDWIFERY.—John Desmond Burrows, M.R.C.S., L.R.C.P., Margaret Stewart Lithgow McCash, M.D., Sherda Shriniwaslu Naidu, M.B., B.S., D.T.M. and H., Achamma Thomas, L.M.S., L.A.H., D.C.H.

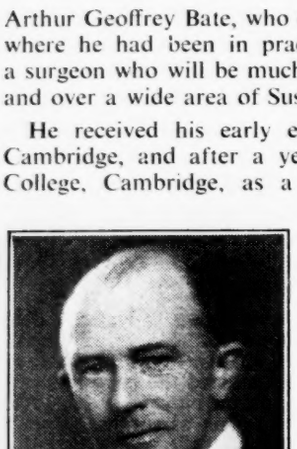
Obituary

A. G. BATE, M.B., B.CH.CAMB., F.R.C.S.ED.

Consulting Surgeon, Royal Sussex County Hospital, Brighton

Arthur Geoffrey Bate, who died on November 24 at Hove, where he had been in practice for thirty-five years, was a surgeon who will be much missed in Brighton and Hove and over a wide area of Sussex.

He received his early education at the Leys School, Cambridge, and after a year in Canada went to King's College, Cambridge, as a choral scholar. In 1897 he graduated B.A. with first-class honours in the Natural Sciences Tripos, Part I. From St. Mary's Hospital he subsequently took the M.B., B.Ch. degrees at Cambridge, and after holding resident appointments at St. Mary's he began duty in January, 1904, as senior house-surgeon at the Royal Sussex County Hospital, Brighton, a post which he held for three years. On resigning this position Bate went into practice in Hove, where his surgical skill brought him an increasingly large connexion and a multiplicity of hospital appointments, which testify to the high opinion held of his ability. At one time or another he was honorary surgeon to the Royal Sussex County Hospital, the Hove General Hospital, the Royal Alexandra Hospital for Sick Children, Brighton, the King Edward VII Hospital, Haywards Heath, the Crowborough War Memorial Hospital, and the Crawley Cottage Hospital. To all these charitable institutions he gave his skill and time unstintingly. He was also surgeon to Brighton College, to the Brighton Borough Mental Hospital, and to the Brighton Borough Infirmary, now the Municipal Hospital. In 1907 he took the F.R.C.S.Ed. A sound diagnostician, he was a natural surgeon, a rapid and deft operator who made the abdomen his special interest. From August, 1914, he served throughout the war as Captain R.A.M.C.(T.), 2nd Eastern General Hospital. He first joined the British Medical Association in 1906, and was honorary secretary of the Section of Diseases of Children at the Annual Meeting at Brighton in 1913. He was also for three years honorary secretary and in 1928–9 president of the Brighton and Sussex Medico-Chirurgical Society.



Geoffrey Bate had many interests outside his profession, and in all of them he excelled. He had an inborn bent for mechanics, was one of the earliest motor-cyclists, and knew the details of a motor-car as well as he did those of the anatomy of the human body. Gifted with a fine light tenor voice and a talented musician, his services as vocalist, pianist, or organist were in great demand and were freely given. For years up to his death he was president of the Brighton and Hove Amateur Operatic Society, in which capacity he received valuable help from his wife. Freemasonry, Rotary, and photography filled up what little spare time he had left, and he was all his life a warm dog-lover, his companions varying from Great Danes and bulldogs to cocker spaniels and Aberdeen terriers. Everything he did he did with all his might, and three years ago there came an attack of coronary thrombosis from which he ultimately made a good recovery. He was compelled, however, radically to curtail his activities, and particularly, to his great regret, to sever his active connexion with the Royal Sussex County Hospital, which he had served so well for so many years. He was appointed consulting surgeon for valuable services rendered. During this latter period he concentrated upon a branch of practice for which his long experience, clear judgment, and unbiased mind made him peculiarly fitted, and his services were in great demand for compensation and other legal cases. In early days a fine lacrosse and hockey player and a wicket-keeper of no mean skill, later he was a keen supporter of the Sussex County Cricket Club and of the Brighton and Hove Albion Football Club, to which he was for many years honorary surgeon.

The end followed a second coronary thrombosis. He leaves a widow and three daughters, whose sorrow is shared by all who knew him.

D. H.

JOHN STEWART MUIR, M.B., M.R.C.P.ED.

Dr. John S. Muir, a well-known practitioner of the Scottish border region, died at his residence, Thorncroft, Selkirk, on November 18, in his ninety-fourth year. Dr. Muir was born in 1845, and after taking the licence of the Royal College of Surgeons, Edinburgh, in 1866, graduated M.B., C.M. at Edinburgh in 1867. After a period as house-surgeon to Professor Spence in the Royal Infirmary, Edinburgh, Dr. Muir settled in practice at Selkirk, and was for many years regarded as the doyen of the profession in this neighbourhood. In 1874 he became medical officer for Selkirk burgh and prison, and for several neighbouring parishes. He was also a J.P. and an honorary Sheriff Substitute for Selkirkshire. Only in June, 1937, the freedom of the burgh of Selkirk was conferred on him in recognition of his devoted work in the locality. Dr. Muir took a great interest in various local activities, and had a long association with the Border Rifles, being present at the "Wet Review" in 1881; he retired from the Territorial Force in 1905 with the rank of surgeon lieutenant-colonel and honorary colonel. He also took a great interest in the Berwickshire Naturalists' Club, of which he was a prominent member and ex-president. He identified himself closely with the activities of the British Medical Association, his membership extending to sixty-five years. The offices he held included that of chairman of the South-Eastern Counties Division, 1912–13, and president of the Edinburgh Branch, 1922–3. For a number of years he was a representative in the Representative Body, and in 1921–2 a member of the Insurance Acts Subcommittee for Scotland. Dr. Muir was a man of great physical activity, and he rejoiced in long cycle rides over Scotland and England. Even at the age of 90 he continued to lead members of the Berwickshire Naturalists' Club on foot. Possessing a gracious and lovable personality, he was much in request at social meetings of his colleagues for songs and recitations, which he rendered with great success in the Scottish dialect. In 1928 the Royal College of Physicians of Edinburgh conferred upon him its honorary Membership. Dr. Muir was predeceased several years ago by his wife, but is survived by a son and three daughters.

Medical Notes in Parliament

The House of Commons spent two days this week upon the second reading of the Criminal Justice Bill.

On November 29 the Conservative Agricultural Committee conveyed to the Prime Minister an intimation that in the view of the Committee the Milk Industry Bill should be withdrawn and an agreed measure introduced in its place. It was widely believed that the Government would take this course, as the Bill had been much criticized.

Sir Francis Fremantle, having secured the right to initiate a debate on November 30, gave notice of intention to call attention that day to medical services in civil defence and to move: "That this House recognizes the call upon the medical services in case of air raids as a cardinal factor in such an emergency; is of opinion that a complete and detailed scheme is required providing for the medical and auxiliary personnel, the institutions, equipment, communications, and transport entailed; and demands that both policy and administration shall be devised without delay and carried out under responsible co-operation between the British Medical Association and other representatives of the medical profession and of the hospitals with the several Government Departments concerned."

The second reading of the Cancer Bill will be taken in the House of Commons at an early date. The text of the Bill was issued on November 30. Dr. Elliot has promised to address the Conservative Health and Housing Committee on it on December 7.

A statement by Sir John Anderson on the organization of national effort for civil defence was promised for December 1 in the House of Commons.

Progress of Bills

The Marriage (Scotland) Bill was read a second time in the House of Lords on November 24.

The Mining Industry (Welfare Fund) Bill was read a first time in the House of Commons on November 24.

Blood Tests in Bastardy Cases

In the House of Lords on November 23 Lord MERTHYR introduced the Bastardy (Blood Tests) Bill, to empower courts of summary jurisdiction to require an applicant for an affiliation order, her child, and the defendant to undergo blood tests. If the applicant refuses the court must dismiss the application.

Workmen's Compensation: Medical Board Rejected

Mr. GEORGE RIDLEY moved the second reading of the Workmen's Compensation Bill on November 18. He said the whole question of workmen's compensation had been referred to a Royal Commission, but the Bill dealt only with urgent and imperative aspects of the subject. At present thousands in receipt of workmen's compensation were compelled by poverty to seek relief from public assistance committees. The Bill would provide for weekly payments to a widow instead of for a lump sum. It also proposed increased payments for incapacity.

Mr. T. LEVY moved that the House decline to give a second reading to the Bill pending the report of the Royal Commission.

Mr. HAYDAY, in supporting the Bill, said Clauses 5 and 6 proposed a medical board of three to take the place of a single referee in dealing with these cases. There were many silicosis cases outside compensation. A person freeing sand from steel castings could claim compensation if injuriously affected, but not if engaged in freeing sand from cast-iron castings. He was informed that infective jaundice, a disease associated with contamination by rats, was growing. It might be contracted in the course of certain occupations, but no compensation allowance was made for it. Diseases arising from the use of pneumatic drills were not scheduled.

Sir ARNOLD WILSON urged the Home Secretary to accept the clauses of the Bill dealing with medical referees. The Holman Gregory Committee had said the question deserved most earnest consideration from the Government. He believed most medical referees and the British Medical Association would welcome the replacement of medical referees by medical boards. The present system had no defenders in the House or elsewhere.

Mr. GEOFFREY LLOYD said the workmen's compensation system was, broadly speaking, still based on the pioneer Act of 1897, but there had been a good deal of action by the Home Office, including extensions of the list of industrial diseases and the introduction of silicosis and asbestosis schemes. The Home Office thought the proposals of the Bill on medical boards were ill considered. The Stewart Committee, on which were three trade union representatives, had proposed unanimously the retention of the one referee. The majority of the cases dealt with by him went through to general satisfaction, and he was more accessible to the workman than an elaborate medical board sitting in the nearest large centre. While keeping the one medical referee the Stewart Committee proposed to provide for medical tribunals of appeal. That was a matter on which further consideration was needed. The Government was unable to agree with the proposals in the Bill for dealing with workmen's compensation issues. Nystagmus was a subject so self-contained and so special as to require different treatment which need not impinge on the general principles of a workmen's compensation system. The Government would look favourably on a Bill which might be brought forward to deal with the question of nystagmus. He could not, that afternoon, make a statement about silicosis.

The Bill was rejected by 157 to 131.

German Refugees

On November 21 Mr. CHAMBERLAIN made a statement on the possibility of facilitating the admission and settlement of involuntary emigrants from Germany. He said the number of refugees which Great Britain could admit, either for a temporary stay or for permanent settlement, was limited by the capacity of the voluntary organizations dealing with the refugee problem to undertake the responsibility for selecting, receiving, and maintaining a further number of refugees. He outlined possibilities of settlement in the Colonial Empire. Sir SAMUEL HOARE, speaking in reply to a debate on the refugee problem on the same date, said 11,000 German refugees had been settled in this country. He was opposed to a quota. It was safer to treat individual cases on their merits. They could deal with Jewish and non-Aryan children in large numbers, provided they were sponsored by responsible bodies.

Housing in Scotland

In the House of Commons on November 22 Colonel COLVILLE moved the second reading of the Housing (Financial Provisions) (Scotland) Bill. He explained that the main purpose of the measure was to make further financial provision to enable local authorities to continue their attack on the slums and overcrowding. The Bill made certain adjustments in the rate of Exchequer contributions, and authorized the payment of special Exchequer contributions to an approved housing association to enable it to build demonstration housing schemes outside the Special Areas without any cost to the local authorities. Side by side with this new arrangement the Special Areas Housing Association would extend and accelerate its housing programme within the Special Areas. The houses built in Scotland this year would have reduced the housing needs, but little short of 250,000 new working-class houses would be required in Scotland. About 1,000,000 persons would have to be rehoused in more suitable conditions. A feature that had caused the Government much concern had been the steep rise in building costs during the past three years. He hoped to receive the report of the Departmental Committee which had been inquiring into the reasons for the increase early in the New Year. To counteract in some measure the shortage of skilled labour in certain trades every encouragement had been given

to the building of houses by alternative methods of construction, which made the minimum demand on the types of labour that were short and made the most use of the types of labour that were plentiful. This policy was being further developed by this Bill. At the same time the Government did not regard these alternative methods as anything more than a supplementary way of providing houses, and expected local authorities to push on with all possible speed with building by ordinary methods.

The Bill was read a second time.

Unhygienic Conditions in Ships

On November 22 Mr. BEN SMITH asked the President of the Board of Trade whether his attention had been drawn to the annual report of the Tyne Port Health Authority for 1937, which stated that the inspection of vessels revealed 1,691 defects, many of them concerned with heating, doors, floors, bunks, lavatories, dampness due to leaking decks, ports, skylights and decklights, the presence of dirt, vermin, litter, discarded bedding, and the need for painting; and whether, in view of the fact that many of these defects remained unremedied, he would take steps to ensure a stricter adherence to principles of comfort and hygiene. Mr. OLIVER STANLEY said the port health authorities had full powers under the Public Health Acts to require the abatement, or themselves to abate, in ships within their districts insanitary conditions or other nuisances injurious to health. The duty of seeing that crews' quarters were kept in a fit condition fell primarily on the master as representative of the owner. A joint committee set up by the Shipping Federation and the National Union of Seamen was at present considering methods of improving the standard of comfort and cleanliness in crews' accommodation. Close co-operation was also maintained between officers of port health authorities and Board of Trade surveyors.

Medical Service of Dependants in Scotland

On November 22 Mr. WESTWOOD asked the Secretary of State for Scotland if he had considered the report of the Departmental Committee on the Scottish Health Services, with special reference to the provision of a medical service for wives and dependants of insured persons, and what action, if any, he proposed to give effect to either the majority or minority reports. Colonel COLVILLE said that this matter had received careful consideration, but he could not at present hold out any prospect of legislation.

Mr. WESTWOOD asked if the Minister was aware that the section of the British Medical Association which represented Scotland was now unanimous that some action should be taken in the interests of the health of the dependants of insured persons in Scotland. Colonel COLVILLE said he was aware of the importance of the question. The committee found it difficult to arrive at a solution.

Pulmonary Disease Investigation in South Wales

Earl WINTERTON, replying to Mr. J. Griffiths on November 22, said that the investigation into chronic pulmonary disease among coal-miners in South Wales was making good progress. The analysis of the large amount of evidence collected at the Ammanford No. 2 colliery had been completed. As a result, it had been decided not to make another comprehensive study of this kind, but to make more limited and rapid inquiries at a number of different pits which were now being selected. It was hoped to complete these further inquiries within six months, but as the results could not be foreseen it was not yet possible to say when the investigation as a whole would be concluded.

Hospital Superintendents and Matrimonial Causes Act

On November 22 Mr. SORENSEN asked the Minister of Health whether he was aware of the difficulties that had arisen in connexion with the Matrimonial Causes Act through the failure or refusal of a mental hospital visiting committee to safeguard a medical superintendent by giving him instructions on the answering of reasonable inquiries respecting divorce proceedings; and whether he would take steps to avoid any such difficulties in future. Mr. BERNAYS said that the Board of Control had suggested to the Mental Hospitals Association that the position of the medical superintendent might be safeguarded if the visiting committee gave him definite instructions to answer reasonable inquiries. The Minister of Health was not, however, empowered to give visiting committees any direction in this matter.

Government and Treatment of Cancer

Dr. ELLIOT was asked whether, before establishing further centres for the treatment of cancer by radium, he would have an expert investigation made of the whole question of radium treatment. He replied on November 24 that the further centres proposed to be established were for the treatment of cancer not merely by radium but by every recognized therapeutic agency. Radium was generally agreed to be a valuable agent in the treatment of cancer, in spite of the dangers attending its unskilful use. He did not think that the establishment of more centres should be deferred on that account.

Defective Hearing in Children

Mr. DAVID ADAMS asked on November 24 what steps the Government proposed to carry out the recommendations of the committee of inquiry into problems relating to children with defective hearing, and, in particular, if steps were being taken for the establishment of schemes for the treatment of ear diseases and defective hearing as a branch of the school medical service of local education authorities. Mr. KENNETH LINDSAY replied that the Board of Education was in general agreement with the recommendations of the committee, and was considering what steps were necessary to give effect to them. About one-half of the local education authorities were known to have schemes for the treatment of ear diseases and defective hearing. These schemes comprised arrangements either for the services of visiting specialists at aural clinics or for the provision at hospitals of in-patient or out-patient treatment.

Refuse from Coal Mines

Mr. J. J. LAWSON moved on November 25 the second reading of the Public Health (Coal Mine Refuse) Bill. He said the Bill was to make automatic instead of permissive the obligation to deal under Section 92 of the Public Health Act, 1936, with accumulations or deposits of refuse from coal mines if liable to spontaneous combustion. Such accumulations would be deemed to be prejudicial to health or a nuisance. Sir FRANCIS FREMANTLE said the nuisance clause of the Public Health Act had been a subject of contention ever since it was enunciated in the Act of 1875. It was difficult to say what was prejudicial to health or a nuisance.

Mr. BERNAYS said he was not convinced that the Bill would do all that was expected of it, but the House should give it a second reading.

The Bill was read a second time.

Health Insurance for Dependants.—Dr. ELLIOT holds out no hope of introducing legislation at present whereby the wives and children of persons insured under the national health insurance scheme may become entitled to medical benefit under the panel system.

Non-pulmonary Tuberculosis in Lancashire.—Mr. RHYS DAVIES asked, on November 10, whether the last annual report of the county medical officer for Lancashire showed increases in the number and percentage of non-pulmonary tuberculosis cases among children; if so, how these figures compared with other industrial areas. Dr. ELLIOT replied that there was a certain increase in the number of cases of non-pulmonary tuberculosis notified, consequent upon the medical examination of the school children, but the annual report of the county medical officer did not indicate any increase in the total number of cases among children. Indeed the figures showed a slight decrease compared with the preceding year. For the country as a whole there was a slight rise in the notifications of deaths at all ages. For Lancashire the figures were rather more favourable.

Investigation into Causes of Rheumatism.—Mr. WHITELEY on November 17 asked Dr. Elliot to consider the advisability of setting up a committee of inquiry into the causes of rheumatism with a view to its cure and prevention. Dr. ELLIOT replied that research into the problem of rheumatism was already undertaken by the Medical Research Council as part of its general activities. Investigations were also in progress by the Empire Rheumatism Council. It would be undesirable at present to institute another inquiry.

Fumigation with Naphtha Vapour.—Dr. ELLIOT, replying to Mr. Kirby on November 17, said the corporation of Liverpool among other methods of disinfestation used naphtha vapour gas. In one case where there were special circumstances a claim made by an occupant of a neighbouring house for injury to health through the escape of naphtha fumes was settled out of court by the corporation. Such few other complaints as had been made had not been substantiated, and no danger to health need be apprehended. The control and management of houses belonging to local authorities were vested by statute in the authorities, and he had no power to give them instructions to arrange the evacuation of adjoining property while disinfestation was taking place. The safest and most effective way of removing vermin from dwelling houses was under the consideration of a committee of the Medical Research Council.

Sewage Disposal in Holiday Camps.—Mr. POOLE asked on November 17 a question alleging unsatisfactory sanitary arrangements during the past summer in holiday camps in the urban district of Abergele. Dr. ELLIOT replied that representations had been made to him on the method of disposal of sewage at Kinmel Bay. The Urban District Council of Abergele had under consideration proposals for a sewerage scheme to serve this area. He was making further inquiries with regard to these proposals.

Alleged Small-pox Case on Board Ship.—Mr. GROVES asked on November 18 for details of a case of small-pox recently found when a ship called at Gibraltar, the patient being an American doctor. Dr. ELLIOT replied that particulars of this case had been given to his Department, which indicated that the illness from which the patient suffered might not have been small-pox. The patient was successfully vaccinated against small-pox in childhood, and had been vaccinated on several subsequent occasions without result.

Post-vaccinal Encephalitis.—Dr. ELLIOT, replying to Mr. Groves on November 21, said that in the five cases of post-vaccinal encephalitis referred to in the Annual Report of the Chief Medical Officer for 1937 Government lymph had been used. Medical practitioners had been requested from time to time by notice in the medical press and otherwise to report to his department any case of acute nervous disease following within four weeks of vaccination. Information regarding such cases was also obtained from the returns rendered by public vaccinators to the Government Lymph Establishment regarding the use of Government lymph. There was no reason to suppose that any sensible number of such cases escaped the notice of the Department.

Tuberculosis Death Rate in Women.—Colonel COLVILLE told Mrs. Hardie, on November 22, that the report of the medical officer of health for Glasgow contained the statement that the death rate from tuberculosis among girls from 15 to 25 years of age had increased, and that notifications of this disease among this age group had risen during the last five years. While the general death rate from pulmonary tuberculosis had continued to decline, the relatively high mortality among young adults had been a matter of serious concern for many years. The rate among girls in Glasgow was receiving special consideration from the medical officer of health and his staff.

Chronic Incapacity of Insured Workers in Scotland.—On November 22 Colonel COLVILLE informed Mrs. Hardie that the clinical inquiry by the Department of Health for Scotland into the problem of chronic incapacity of insured workers in Scotland was still proceeding. It was too early to give any indication of the conclusions which might be drawn. About 25,000 cases had now been reviewed, of which some 5,000 had undergone special clinical examination.

Storage of Blood for Transfusion.—Dr. ELLIOT said on November 24 that he knew the transfusion of stored blood had been extensively adopted in Spain during the war. His advisers were in touch with the arrangements for blood transfusion which are proposed in this country by the British Red Cross Society and the hospitals.

Treatment of Gas Casualties.—Sir JOHN ANDERSON stated on November 24 that specially selected and trained medical practitioners were appointed by the Home Office in 1936, and were available throughout Great Britain to give to members of the medical and allied professions, whether they had volunteered for air raid precautions duties or not, free training in the general and medical aspects of anti-gas methods so as to enable them to give skilled treatment to gas casualties.

Notes in Brief

It will not be possible to legislate this session to give effect to the recommendations of the Departmental Committee on Coroners.

The committee appointed to consider the effect of cardroom dust on workers in the cotton industry hopes to present its report before the end of this year.

The administrative cost of health insurance during 1937 was 14.6 per cent. of the total expenditure on that scheme.

Ample fresh vegetables are included in the diet of H.M. prisons, but the inclusion of fruit would involve a large addition to the cost, and the medical evidence as to the effect on health of the present dietary is such that the Prison Commissioners have not felt justified in proposing this increased expenditure.

Medical News

The Harben Lectures, 1938, under the auspices of the Royal Institute of Public Health and Hygiene, will be delivered by Professor R. D. Passey on "Factors in Carcinogenesis" at 28, Portland Place, W., on Monday, Tuesday, and Wednesday, December 5, 6, and 7, at 4 p.m. Admission is free to members of the medical profession and to medical students. Applications for seats should be made to the secretary of the Institute.

The next Réunion Médico-Chirurgicale de Morphologie will be held in the amphitheatre of the School of Anthropology, 15, Rue de l'Ecole-de-Médecine, Paris, on Wednesday, December 14, at 9 p.m. Particulars may be had from Dr. C. Claoué, 39, Rue Scheffer, Paris, XVIe.

The fifty-first Congress of the German Society for Internal Medicine will be held at Wiesbaden under the presidency of Professor Stepp of Munich from March 27 to 30 next, when discussions will be held on arteriosclerosis, morbid anatomy of circulatory disturbances in the brain, clinical disorders of the brain, and psychical changes due to disturbance of the cerebral circulation.

The programme has now been issued for the twelfth annual congress of the British Institute of Radiology to be held at the Central Hall, Westminster, on December 7, 8, and 9. On the first day, at 3 p.m., the Mackenzie Davidson memorial lecture will be given by Dr. G. Shearer. On the second day there will be medical papers on "Contact Therapy" in the morning, and physical papers in the afternoon. On the third day there will be medical papers on "*X*-Ray Diagnosis with Reference to the Urinary Tract" and on "Stereo-radiostratigraphy" in the morning, and the Silvanus Thompson memorial lecture by Dr. Ledoux Lebard on "Advances in the *X*-Ray Diagnosis of Gastric Cancer" in the afternoon. An exhibition of *x*-ray apparatus will be open each day.

Major-General Sir Cuthbert A. Sprawson, I.M.S.(ret.), who visited the U.S.S.R. this summer, will speak on his impressions at a meeting arranged by the Society for Cultural Relations on Thursday, December 8, at the Royal Society of Arts, John Street, Adelphi, W.C., at 8.30 p.m., with Professor W. E. Le Gros Clark, F.R.S., in the chair. The secretary of the S.C.R. will send invitations to those interested if they apply to her at 98, Gower Street, W.C.1. Sir Cuthbert Sprawson will deal principally with Soviet medical education and the campaign against tuberculosis.

At the first meeting of the trustees of the Lord Nuffield Fund for Orthopaedic Services in the Union of South Africa, held in London on November 22, the Earl of Athlone was elected chairman and the trust deed was signed by Lord Nuffield and the four trustees—Lord Athlone, Professor G. R. Girdlestone, F.R.C.S., the High Commissioner for South Africa, and Mr. W. Hobbs. The other trustees, in approving Professor Girdlestone's draft orthopaedic scheme for the Union of South Africa, place on record their appreciation of his valuable services in undertaking the great burden of work involved in its preparation and his zeal and generosity in giving to South Africa the benefit of his great experience and advice.

With the November number Dr. John Comrie has succeeded Dr. A. Rae Gilchrist as editor of the *Edinburgh Medical Journal*.

The Crown Agents for the Colonies, 4, Millbank, London, S.W.1, have published at 6d. the returns for 1937 of vital statistics of non-native officials in West Africa.

EPIDEMIOLOGICAL NOTES*

Infectious Diseases during October

In the four weeks ending October 29, 1938, 7,558 cases of scarlet fever, 5,227 cases of diphtheria, 2,050 cases of primary pneumonia, and 111 cases of enteric fever were notified in England and Wales. The notifications of scarlet fever, diphtheria, primary pneumonia, and enteric fever were 74 per cent., 102 per cent., 72 per cent., and 62 per cent. of the expected numbers (deduced from the median values of the corresponding weeks of the years 1929–37).

Enteric Fever

The outbreak of typhoid fever in Shoreditch, described in detail in last week's issue, appears to be under control (last case notified on November 24), despite the fact that the source of infection has not been traced so far. Of the 28 cases notified to date, 25 were in the borough and 3 were outside. As 2 of the cases have not yet been confirmed the actual total is 23 cases in the borough. In East Suffolk 4 cases were notified during the week—3 at Hartismere and 1 in Ipswich.

Poliomyelitis

During the week poliomyelitis fell in England and Wales from 51 to 45, but in London notifications rose from 3 to 5. Of the 45 cases 4 were in Essex (West Ham 1, Halstead 1, Chelmsford 1, Saffron Walden 1), 4 were in Southampton (Ringwood and Fordingbridge 2, and 1 each in Eastleigh and Winchester), 3 in Hertford (Bishop's Stortford 2, Welwyn Garden City 1), and 3 in Derby—all in Heanor urban district. The 5 London cases occurred in Battersea, Finsbury, Greenwich, Lambeth, and St. Pancras.

In Germany in the week ended November 5 there were 254 cases notified, compared with 96 for the corresponding week of 1937. Increases were recorded in Bavaria 61 (41) and Württemberg 51 (36). Twenty-one cases were notified in Holland during the week ended November 12, 14 of these being in the Province of South Holland and 4 in that of North Holland. During the fortnight ended October 31, 117 cases were recorded in Sweden, including 32 non-paralytic cases: of these 117 cases 32 occurred in the rural districts of Jämtlands Province and 19 in those of the Västernorrlands Province. During the same period 89 cases were recorded in Finland, including 18 in the rural district of Hollola and 12 in the town and district of Helsingfors.

Anthrax

The manner in which public health authorities, with the co-operation of hospital and pathological services, and the business firms immediately concerned trace and eradicate even rare infections is well illustrated by a recent case of anthrax in the borough of Southwark, London. On October 21 a workman employed in a brush-making factory developed a pimple on the face which was recognized as a malignant pustule when he came under observation five days later: serum treatment was immediately instituted with complete success. Specimens of all types of bristles and hair were taken from the factory for examination at the Ministry of Health pathological laboratory in London: among these was a specimen of Manchurian horsehair which had been purchased from a firm in Bermondsey on October 3 and which was said to be dusty and dirty. Similar specimens were obtained from this firm and from the original source of supply, acquired in October, 1937, by a firm in the City of London. None of this horsehair had been used by the brush factories until October 3, 1938. The distribution of the suspected horsehair was therefore limited, as was the number of brushes already made from it. All the firms handling the bristles and horsehair and all brush manufacturers were asked to stop all sales until the investigations were completed. Lists were prepared of all purchasers, retail and private, of the horsehair, bristles, and brushes, and the medical officers of health for the districts concerned were notified. On the evening following notification all the suspected articles had been traced. Next day the Ministry of Health laboratories reported that the hogs' bristles were apparently free from infection but the Manchurian horsehair was infected. Medical officers of health were all informed by telephone, and late that evening all the infected hair and brushes in the districts concerned were destroyed.

Diphtheria and Scarlet Fever

During the week diphtheria rose from 1,445 to 1,530 in England and Wales, and from 141 to 160 in London. The chief centres affected were London 160 (Lambeth 20, Battersea 13, Wandsworth 12, Southwark and Poplar 10 each, and Paddington and Shoreditch 8 each), Birmingham 33, Bristol 31, Manchester 27, Liverpool 25, South Shields 24, Sheffield 21, Easington 17, and Cheltenham 10. In South Shields diphtheria is still rife, but the type of disease has become milder, many of the cases notified being merely carriers. Nearly 5,000 children between the ages of 5 and 8 years have recently been inoculated, but it will probably be found necessary to apply the measure to children under school age before the disease can be eradicated.

Scarlet Fever

Despite the increase of scarlet fever in England and Wales from 1,887 to 2,072, notifications remain well below the median value for the last nine years, and this holds true for London to a much greater degree. The principal towns affected were London 179, of which 16 were in Wandsworth, 11 each in Bethnal Green, Camberwell, and Hammersmith, and 10 in Hackney; Birmingham 41, Liverpool 66, Manchester 46, St. Helens 23, Stoke-on-Trent 30, Leeds 32, Sheffield 32, Bradford 20, York 20, and Newport 16.

Primary and Influenzal Pneumonia

In England and Wales pneumonia (influenzal and primary) fell from 799 to 723, a figure that is well below the median value for the last nine years. In London a slight rise is recorded, and the number is a little above the median value. Deaths fell from 28 to 21. The counties chiefly affected were: Warwick 41, of which 31 were in Birmingham, West Riding of Yorkshire 85 (Sheffield 17, Leeds 16, Bradford 10), Durham 38, and Stafford 32.

* Except where otherwise mentioned, figures in parentheses refer to the week preceding the one under review.

No. 46

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended November 19, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns (124 in 1937) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1938					1937 (Corresponding Week)					1929-37 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever	15	3	10	3	2	16	2	11	—	—		
Deaths		—	1				1	2				
Diphtheria	1,530	160	288	86	35	1,634	255	261	57	40	1,358	235
Deaths	22	3	2	5	1	38	8	7	3	1		
Dysentery	42	11	18		—	228	69	26		—		
Deaths				—	—				—	—		
Encephalitis lethargica, acute	5	—	—	—	—	2	—	1	—	—		
Deaths		1					—					
Enteric (typhoid and paratyphoid) fever	31	11	8	5	2	97	5	3	38	—	31	
Deaths	3	2	—	—	—	4	2	—	—	—		
Erysipelas			73	8	7			92	11	6		
Deaths		—					—					
Infective enteritis or diarrhoea under 2 years												
Deaths	40	8	7	4	3	43	14	10	6	—		
Measles		23	22		2			203		93		
Deaths	—	—	—	—	—	14	—	3	1	1		
Ophthalmia neonatorum	69	6	28		—	87	10	35		3		
Deaths												
Pneumonia, influenzal‡	723	104	15	5	17	781	92	12	—	2	861	96
Deaths (from Influenza)	21	1	3	2	3	42	10	7	—	2		
Pneumonia, primary			392	11				412	7			
Deaths		1		8	11		22		11	11		
Polio-encephalitis, acute	2	—				2	—					
Deaths		—					—					
Poliomyelitis, acute	45	5	6	2	1	28	1	—	—	—		
Deaths		—					—					
Puerperal fever	7*	7	22	4	—	2*	2	14	1	—		
Deaths		1†					—					
Puerperal pyrexia	180	15	21		1	144	12	24		4		
Deaths												
Relapsing fever	—	—	—	—	—	1	—	—	—	—		
Deaths												
Scarlet fever	2,072	179	396	48	100	2,590	197	574	104	111	2,601	359
Deaths	1	1	1	—	—	2	—	—	1	—		
Small-pox	—	—	—		—	1	—	—		—		
Deaths	—	—		—	—	—	—		—	—		
Typhus fever	—	—	—	—	—	1	—	—	—	—		
Deaths				—	—				—	—		
Whooping-cough		160	293		17			50		7		
Deaths	8	3	2	2	2	13	3	—	—	1		
Deaths (0-1 year)	294	41	87	16	14	344	53	105	34	16		
Infant mortality rate (per 1,000 live births)	49	34				58	44					
Deaths (excluding stillbirths)	4,274	805	603	210	134	4,833	944	693	183	123		
Annual death rate (per 1,000 persons living)	10.5	10.3	12.3	14.2	11.9	11.9	11.9	14.2	12.5	10.9		
Live births	6,388	1,208	844	351	204	5,902	1,231	827	277	201		
Annual rate per 1,000 persons living	15.7	15.4	17.2	23.8	18.1	14.5	15.5	16.9	18.9	17.8		
Stillbirths	273	30				260	45					
Rate per 1,000 total births (including stillborn)	41	24				42	35					

* After October 1, 1937, puerperal fever was made notifiable only in the administrative county of London.

† Death from puerperal sepsis.

‡ Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1

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QUERIES AND ANSWERS

Condensation Water from Theatre Skylight

Dr. E. S. HEMSTED (Newbury) writes: As some of your readers have probably had to solve a similar problem, I should be glad to have the benefit of their experience. The operating theatre in a nursing home is provided with extra lighting by a V-shaped skylight over the operating table. In cold weather the heat of the theatre causes condensation on the glass and drops of water fall from time to time on the patient and also on those carrying out the operation. An electric fan working in the skylight fails to keep the air sufficiently disturbed to prevent this condensation. This difficulty must be frequently met with, and if any reader can suggest a sure and simple solution it would be very greatly appreciated.

Local Use of Petroleum

Dr. RHYS PATON writes: Ordinary lamp paraffin is often used as a hair restorative and it appears to be effective. Can anyone tell me if it is carcinogenic if used over a period of years?

*** We have referred this matter to an expert adviser, who informs us that lamp oils distilled from ordinary petroleum crude have not been tested for carcinogenic power but only those from shale. As the latter proved to be non-carcinogenic, and in view of the generally lower activity of products of petroleum crudes compared with products of oil shale, it is fairly safe to assume that ordinary lamp paraffins are for practical purposes non-carcinogenic.

Cattle Ringworm in Man

Dr. P. J. SMITH (Co. Cork) writes: Dr. Stewart (*Journal*, November 12 (p. 1027) will find ung. hydrarg. nitr. dil. well worth a trial for cattle ringworm in man. I am also a medical practitioner in an agricultural area, and I find that a daily application of this ointment is a specific remedy for the disease he mentions.

Dr. C. EDE writes: I was faced with the same problem when I started practice in a large dairying district many years ago. Dr. Sequeira came to my rescue with resorcin ʒj, tinct. benzoin. co. ʒj. This should be painted all over the area twice a day for a week or ten days.

Varicose Veins

Dr. STUART MCAUSLAND (Liverpool) writes: It is probable that "M.E.D." gave the injection by the full vein method. There are some varicose veins which do not sclerose when the fluid is injected into the full vein. The use of a tourniquet in the empty vein method is desirable. When one fluid failed, "M.E.D." should have had recourse to one of the other sclerosing fluids—for example, 5 or 10 per cent. sodium morrhuate, or lithium salicylate 35 per cent., with 1 per cent. ethocaine. Other reasons for the failure may be that the dose was inadequate or that "M.E.D." did not firmly occlude his puncture site, and exert constant pressure on the vein after the injection by means of a pad of wool and firm strapping with elastoplast. Actually, in my own clinic, no one fluid constantly acts as a sclerosing agent. In such cases one adopts Rodney Maingot's mixed fluid method. This consists in injecting into the one vein 4 or 5 c.cm. of lithium salicylate and 2 or 3 c.cm. of quinine. These fluids when mixed are incompatible, and cause the formation of a glutinous substance. This injection can be made from two separate syringes through one large needle, or a second puncture of the vein may be made half an inch from the original puncture. Upward and downward flushing of the vein is also helpful. Full details of the technique will be found in my book, *Cure of Haemorrhoids and Varicose Veins* (John Bale Sons and Danielsson).

LETTERS, NOTES, ETC.

Price of Radium

In the article in last week's *Journal* headed "Government versus Cancer" we recorded an announcement in the *Times* that the Government had bought 11 grammes of radium from the Eldorado Gold Mines, Ltd., at a cost of about £200,000. As we were aware that radium can be bought for about £5 a milligramme we should have interpolated the convenient "(sic)" or expressed surprise and doubt with the aid of an exclamation mark. But we did not know which figure was wrong—that for the price paid or that for the quantity bought. During the war radium cost about £20 a milligramme; eight or nine years ago it cost about £12 a milligramme; during the last four or five years the price has been in the region of £10; and during more recent months between £5 and £7.

"Typhoid Mary"

Dr. W. R. BETT writes from New York City: Mary Mallon or "Typhoid Mary" (typhoid carrier No. 36), to whom reference was made in the *Journal* of June 4 (p. 1247) and on August 20 (p. 436), died of paralysis on November 11 in Riverside Hospital on North Brother Island in New York City's East River. A "medical prisoner" for more than a quarter of a century, at first she had proved rebellious and moody, but with advancing years became profoundly religious and more philosophical in her acceptance of fate. She suffered a paralytic stroke on Christmas Day, 1932. Of Irish extraction, she managed to conceal her exact age, but was believed to be about 70. She was buried in St. Raymond's Cemetery, the Bronx.

Reprints and Pamphlets

The Librarian, University College, Dublin, would be pleased to receive offprints and pamphlets on medical subjects for the use of the staff and research workers in the Medical School of that College. The Medical Library already possesses a large collection, but it is very probable that much material on these subjects is still available.

Ether Convulsions

Dr. J. J. HOGAN (Waterford) writes: Seeing the amount of correspondence that has appeared on ether convulsions, I thought it might interest the writers and other anaesthetists if I mentioned that I have been giving ether for thirty-two years (about 20,000 cases) and I have never seen a case of ether convulsions.

Benzedrine: Correction

Dr. G. DE M. RUDOLF writes: So seldom are errors made in the reports in your columns of discussions at the Royal Society of Medicine that I would like to draw attention to one which must be the exception which proves the rule. In the account of the discussion on benzedrine (November 5, p. 961) I am reported to have said that I knew a doctor who used an inhaler about once an hour and was awake all night. Perhaps I lowered my voice so that the reporter was unable to hear, but I said that he used the inhaler more often than once an hour, and that he used it in the evening. I am drawing attention to this point as, in my experience, the inhaler used hourly, even in the evening, does not interfere with sleep.